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ILLUSTRATED PRICE CATALOGUE

EVANCHER CREEK

NOV 23 1919

U.S. GEOLOGICAL SURVEY



FEB -3 1920

Information for Intending Purchasers

The Order Blank accompanying this catalogue is for the convenience of customers and we will appreciate their using it, as it will facilitate the filling of their orders.

Always Give Full Address.—This is important; write your name plainly, your post-office, county and state.

Shipping Instructions.—Give your nearest express office and railway station, or stage route, and the name of the transportation company.

Write distinctly how you wish us to ship—by freight or express; also designate the route, otherwise we use our own discretion in forwarding.

Export Orders.—Orders for export to Old Mexico, the Hawaiian Islands, Cuba and South American points should give, in addition to the above, the steamship routes by which their orders are to be shipped.

No accurate data can be given as to freight charges on orders for export, but charges must be prepaid. With all export orders we require full amount of cash and in addition thereto at least as much as one-half of the amount of the order to cover transportation charges; otherwise we will reduce the order so that the remittance will pay for the order and transportation charges. Any amount remitted and not used will be returned later.

Accounts.—Orders from unknown correspondents must be accompanied by a remittance or satisfactory reference.

Orders to be sent by express, C. O. D., will be filled, provided one-half of the amount is sent with the order.

Remittances.—Send post-office money order, registered letter, express order, bank draft, or check. All orders from foreign countries to be accompanied by draft or international money order payable in U. S. gold.

Substitution.—Please state whether substitution will be permitted, as we feel at liberty when no instructions accompany the order to use other varieties as nearly similar as possible.

It very often happens on orders of small assorted varieties, for a home orchard, that it is necessary to make substitutions. On orders for commercial planting, substitutions are never made without first obtaining consent of customer.

Methods of Packing.—The method of packing a shipment of trees or plants is the basis on which freight charges are made. Nursery stock in bales completely covered with tulle or burlap takes a first-class rate; in crates, second-class; in cases completely boxed the third-class rate applies.

We have made a very close study of traffic conditions, and our knowledge is used to secure in all cases the very lowest freight rates for the benefit of our customers.

We cannot hold ourselves responsible for any loss or injury to trees or plants after they have been carefully packed and shipped, but we will do everything in our power, if any loss should occur, for the protection and recovery of our customer's property.

Packing Charges.—We charge for the same only to cover the cost of material. Cartage to the railway or express office free of charge.

Parcel Post.—Within a radius of 150 miles from Fresno, orders not exceeding fifty pounds in weight and outside of this zone in the United States or any of its possessions, packages not exceeding twenty pounds may be forwarded by parcel post. Stock forwarded in this manner is charged for at single rates and the postage is extra. Our customers will kindly bear this in mind in making remittances.

It is not practical to send anything but the light grade trees, shrubs and plants in this manner and in many instances these must be cut back severely to come under the dimension regulations.

In California the requirements to forward to district inspection points for examination by the Horticultural Commissioner before it reaches destination, in many cases adds to the cost on account of the charges which accrue for re-forwarding and possible damage to the stock due to the lack of facilities for re-packing properly. Except to points at a distance from the railroad we strongly advise the forwarding of shipments by freight or express.

Errors.—If any mistakes are made in filling orders, we will cheerfully rectify the same, but must respectfully request our customers to notify us at once, or, at the most, within ten days after receipt of the goods.

Selecting Varieties.—The difficulty of selecting varieties is a problem which no doubt confronts many of our customers, and in order to assist them in this we have placed an asterisk (*) opposite the names of such sorts which rank high in the planting of commercial orchards.

Prices subject to change without notice.

QUANTITY ORDERS.—Articles mentioned in this catalogue will be furnished as follows: 5 of a variety at the 10 rate, 50 at the 100 rate, 300 at the 1000 rate. To illustrate: one each of Baldwin, Delicious, Gravenstein, Lawver, Red Astrachan, making five in all, would entitle the purchaser to the 10 rate on apples. If an order called for five varieties of apples, as mentioned above, 1 Muir Peach, 1 French Prune, 1 Royal Apricot, 1 Bartlett Pear, 1 Washington Navel Orange, the 10 rate would apply on the apples, but the "each" rate on the assorted trees. Purchasers will please bear in mind that the quantity rates apply only where multiples of the same variety of tree is ordered and not on assortments. As an extreme case, 300 apples, one of each variety, would entitle the purchaser to the 1000 rate just the same as if the order consisted of 10 varieties of 50 trees each: if, however, 100 apples, 100 peaches, 100 pears were ordered, the 100 rate would apply on each item.

GUARANTEE.—The Fancher Creek Nurseries will exercise care to have all stock true to name; nevertheless it is understood and agreed that should any stock prove untrue to name, the Fancher Creek Nurseries shall be liable only for the sum paid for the stock which may prove untrue, and shall not be liable in any greater amount.

Address all correspondence to

Fancher Creek Nurseries, Inc.

GEO. C. ROEDING, President

Telephone, Telegraph, Postoffice and Express Address:

FRESNO, CALIFORNIA

Cable Address: "Calimyrna"

Western Union Code

Nurseryman's Telegraphic Code

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ILLUSTRATED PRICE CATALOGUE 1920

TO THOSE WHO PLANT:

In this day of progress business is being divided up into two classes. In one the patron pays for the service rendered and the transaction, as far as the performance and acceptance is completed without any further exactions from either of the parties concerned. In the other class of business there is an aftermath, or to be more to the point, a reckoning which either redounds to the credit of the men or firm who receives the customer's money for the merchandise delivered, or on the other hand, the merchant may be branded as indifferent to the rights of his client, ready to take his money, congratulating himself if he succeeds in getting by without his customer discovering that he has been a victim of sharp practice.

In most lines of business where deception has been practiced on a customer, it is only a question of a very short time when he learns of the sharp practice. It is in this one respect that the nursery business differs from practically all other lines. To have nursery stock "True To Name" is what every nurseryman aspires to, as being the pivotal point in his business. He can not afford, however, to consider that his duties are completed even after having fulfilled this part of his obligation; for there are a number of other considerations. Among these may be mentioned the securing of buds, cuttings, scions from trees which are not only thrifty but which are recognized for producing fruit of the very best quality; to have the trees, as far as conditions will permit, free from disease and insect pests; to grow trees in such localities and in soil where trees of the very best quality will be produced; to deliver to his customers only such stock as he would be willing to plant himself, and to pack the same in such a manner as will insure the arrival of the stock in the very best of condition. His obligation does not end even then, for there is still a greater duty to the customer, and that is to be in the position to render a definite service in advising him what to plant.

It may not always be possible for the Fancher Creek Nurseries to fulfill all of the ideals which I have presented, but it is safe for me to say that in the development of this business, with which I have been connected from my boyhood days, and with the experience I have had in the building up of orchard and vineyard properties, I am thoroughly equipped not only to give advice to my customers which will be of value to them, but to direct their efforts along lines which will lead them, if they adopt modern methods of culture to that success which they wish to achieve.

GEO. C. ROEDING.

GENERAL FRUIT TREE NURSERIES:
240 acres, 12 miles south of Fresno.

CITRUS ORCHARD NURSERIES:
320 acres, Exeter, Tulare Co.
100 acres, La Habra, Orange Co.

ORNAMENTAL NURSERIES:
160 acres, 2½ miles N. W. of Fresno.
20 acres, La Habra, Orange Co.

PLANTING DISTANCES

	Distance apart each way
Standard Apples.....	25 to 30 feet
Standard Pears.....	24 to 30 feet
Dwarf Pear.....	12 to 15 feet
Strong-growing Cherries.....	24 to 30 feet
Duke and Morello Cherries.....	18 to 24 feet
Standard Plums and Prunes.....	24 to 30 feet
Peaches and Nectarines.....	24 to 30 feet
Quinces.....	15 to 20 feet
Apricots.....	24 to 30 feet
Figs.....	30 to 40 feet
Olives.....	30 to 35 feet
Citrus Trees.....	22 to 30 feet
Walnuts.....	40 to 50 feet
Almonds.....	24 to 30 feet
Grapes.....	6x6, 6x12 and 8x10 feet

NUMBER OF TREES TO THE ACRE

Distance	Square	Quincunx	Hexagonal	Alternate
8 ft.	680	1360	785	680
10 ft.	435	870	500	435
12 ft.	302	604	349	302
14 ft.	222	444	255	222
16 ft.	170	340	196	170
18 ft.	134	268	154	134
20 ft.	109	218	124	109
22 ft.	90	180	104	90
24 ft.	75	150	87	75
25 ft.	70	140	80	70
26 ft.	64	128	74	64
28 ft.	56	112	64	56
30 ft.	48	96	55	48
32 ft.	43	86	49	43
36 ft.	34	68	39	34
40 ft.	27	54	31	27
45 ft.	22	44	25	22

Note.—All of these figures are not exact for planting one acre, but are intended for the planting of a multiple of acres.

FRUIT TREE DEPARTMENT



The Original Improved French Prune Orchard at Suisun, California—in Full Bloom—The Record Prune Orchard in that District.

OUR OPPORTUNITIES

California has a wonderful charm to those who have been born and reared in the State, and a magnetic attraction to people from all parts of the world, firstly, because of its prominence in the early days, due to the lure of gold, and now that this has taken second place, to its stupendous operations in horticulture and agriculture. Add to this its unique possibilities both in soils and climates, equally as attractive whether in the summer or winter, is it any wonder that so many people are looking forward with such an intense longing to be domiciled within its hospitable shores.

A veritable empire capable of supporting a population equal to that of Spain or Italy and containing more square miles than either of these countries, one begins to gather some faint ideas of its vastness. It contains 158,297 square miles and has a larger area than the following nine states combined: New York, New Jersey, Massachusetts, Rhode Island, Vermont, Maine, New Hampshire, Connecticut, Ohio. Having a shore length of 1,300 miles and average width of 250 miles, is it surprising that our great and fertile soils, our abundance of water from our unfailing streams even in dry years and the great variety of climates that we should possess such striking possibilities in horticulture?

We already lead every other state in the union in our output of horticultural products, nevertheless it is no exaggeration when I say we have only commenced to scratch the soil and very few except those who are closely in touch with the situation, have any conception of the opportunities open to us. It must not be forgotten that the raising of fruit in California is a commercial business and although diversity in farming operations is to be commended, too much of this on a small place simply leads to trouble. Success is therefore dependent particularly on small acreages in devoting the property to that particular industry for which the soil and climate seem to be best adapted.

There are also many other considerations, which must be carefully weighed before a decision is reached by the man who intends to make a business of fruit growing. There is far too great a tendency on the part of so many people to plant the fruit which has been bringing high prices for several seasons utterly disregarding the fact that both soil and climate may not be conducive to making the venture a success. Since fruit growing began in California it is safe to say that a total failure of a crop has never been known. Probably this more

than any other one cause, is the foundation for the building up and the many industries which have made this State, the equal if not the superior, to any other country in the world.

There are three fundamental conditions making this diversity in fruit growing possible.

The one feature above all others is the total absence of rain almost without exception from May 1st to October 1st. Second the variableness in climate which even to me having been born and reared in California is at times almost unbelievable. Just to illustrate the actual conditions I call attention to the records of the weather bureau on July 23, 1917. Fresno, maximum 104° Fahrenheit, minimum 72°. San Francisco, 82° and 52°; San Diego, 74° and 64°.

These figures are an index for the great variety of our fruit products.

Finally the third and last reason is our abundance of rainfall in the coast counties making it possible to grow fruit except the berry family without irrigation, maintaining the moisture in the soil by thorough cultivation. In the great interior valleys of the Sacramento and San Joaquin an abundance of water is secured from the great rivers having their source in the Sierra Nevada Range lying on our eastern border, its mountain peaks extending into the clouds and varying in heights from 10,000 to 14,000 feet.

This then leads me up to the point I desire to make: That fruit growing in California is a pursuit worthy of any man no matter what his attainments may be.

THE RIGHT BEGINNING

In these days a fruit grower should specialize. This does not mean that a man with his family living on a farm should not have a small home orchard, berries, vegetables, alfalfa, a cow, poultry and hogs. The facts are that if more of our orchardists would give closer attention to these details they could not only operate their properties more economically but derive much more pleasure than they now do from them.

PREPARATION OF THE SOIL

Our soils are essentially different from the soils of the middle west and eastern states in one particular and that is in the total absence of the clay sub-strata found elsewhere. All of

our farming operations are therefore surrounded by conditions which are entirely at variance with other sections.

There is nothing which will add so much fertility to the soil, cause a more rapid development in trees, vines or plants than to devote the piece of land to be planted to fruit, to alfalfa for three or four years.

Alfalfa will redeem a refractory soil more quickly than any other crop which could be planted.

Its effect due to its deep root penetration is not only to disintegrate the soil, but add nitrogen to it, having the same faculty in this respect like all plants belonging to the pea family. When it is plowed under, it not only adds humus to the soil, but the decaying roots furnish a great abundance of plant food to the orchard or vineyard planted on the land. The raising of alfalfa on land is only practical where water for irrigation is available and where the grading can be accomplished at a reasonable figure.

It is of the utmost importance that the land be put in first-class condition to receive the trees. This is accomplished by thorough plowing followed by harrowing until the soil is friable. This work should be done in fall and early winter months before the rains set in if possible.

Nothing is so beneficial as sub-soiling, though planters are often disposed to avoid this additional expense, but where time and conditions will permit, it will do more to promote a fine deep root system and an unusually heavy growth, than any other one thing that can be done in the preparation of the soil.

Where irrigation is practised grading must be resorted to, so that all spots will be accessible from the laterals running from the main ditch. Grading does not necessarily mean leveling, for the less the surface soil is moved the greater will be the ultimate success of the undertaking. No greater mistake can be made than to cut down the surface of the land for several feet in order to bring it under a ditch. It is far better under such conditions to pump the water from a ditch to the higher level and thus preserve the land. The slight additional expense of pumping will be more than counterbalanced by the growth of the trees and their fruitfulness as compared to the poor growth and lack of fruit when the surface soil has been removed to any depth. Drainage should be given consideration, particularly if the land is low and liable to have water stand too closely to the surface during the spring and summer months.

TIME TO PLANT

Fall planting is never desirable in California, because the growing season often extends into the month of November. It only rarely occurs that frosts are severe enough toward the latter part of the month to check the growth. The roots of trees dug before they have fully ripened up, turn black and the tree either starts very slowly in the spring, or does not grow at all. The best time to set deciduous trees is from January to April 1st, giving preference to the first two months. All evergreen fruit trees should be planted from February to May 1st, although in many localities, particularly sections of the State where the summer climate is cool, planting may be continued later than this.

A safe rule to follow is to plant deciduous trees when dormant and those which are classed as evergreens as soon as the sap commences to rise in the spring.

SELECTING NURSERY STOCK

Never forget one point in buying trees, viz.: that when purchasing "Roeding True Trees" nursery stock, you are buying from a firm that has devoted over a third of a century to the practical study of growing the very best trees that money, study and an inherent love for perfection in a tree, can develop. Remember also that buying trees is different from the average merchandising. It is not today or the morrow that tells the story, but it is three or more years of hard work, in cultivating, irrigating, pruning, etc., before your fond hopes are realized. Then why not have Roeding Trees growing, and thriving, and finally rewarding your efforts with a wealth of delicious perfect fruit which Roeding-grown trees always bear?

From the planting of the seed to the time our trees reach our patrons, every care that human ingenuity can devise is carefully observed.

TREATMENT WHEN RECEIVED

The trees when received at point of destination should be immediately unpacked and the roots laid in a trench and well covered with soil, which should then be thoroughly wet down. If delayed in transit, thereby becoming dry and suffering from exposure (the bark showing signs of shriveling), it is a good plan to immerse the trees in a tank overnight and the following day bury root and top completely in damp soil for a few days until they become normal, when they may with safety be planted out. Should trees be frozen while in transit, place the package in a cellar or some other place free from frost until thawed out, when they can be unpacked and heeled in, preparatory to planting. Trees treated in this manner will not be injured by having been frozen.

In localities where the seasons are very much later than ours, due to higher elevation or the difference in latitude, it is far better to permit us to forward stock while in the dormant condition. The shipment on arrival at destination should be examined by removing a board from the case, and if the roots appear to be in good condition the contents should remain undisturbed and the case should be placed in a cellar or in a cold storage plant, where the temperature should be main-

tained at about 35° Fahrenheit. This method of handling trees is thoroughly practicable, so much so that we have found it possible to ship trees to the antipodes during our winter season and have the shipment on arrival there placed in cold storage until the opening of the planting season.

PREPARING TREES FOR PLANTING

Just immediately before planting, be sure to examine the roots carefully, and cut away to a smooth surface all bruised, lacerated and broken roots and rootlets with a sharp knife or pruning shear. The cut on the larger roots should be sloping and made on the lower side of the root. The tree can now be said to be ready for its permanent orchard home.

If planting is delayed through circumstances beyond the control of the orchardist and a warm spell should intervene in February or March, causing the buds of the trees or vines to start, remove them from the trenches, shake out all the dirt from the roots and expose them for two hours in the early morning on a calm day to the rays of the sun. This will cause the small, white rootlets which have started, to dry up, and if the trees are heeled in, (wetting them down, of course) in a shady place their dormancy may be prolonged several weeks.

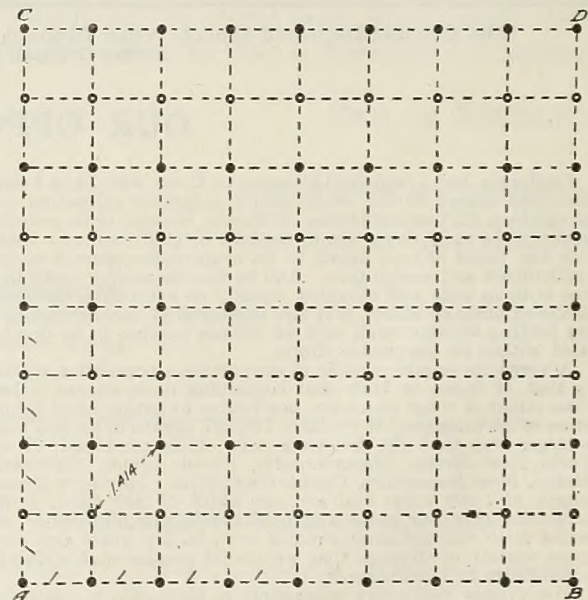
HOW TO PLANT

Planting Systems.—There are a number of methods of planting an orchard, but vineyards are usually set in the square system. In order to eliminate much of the confusion that seems to exist in the mind of the planter when deviating from the rectangular or square system, we are submitting plans drawn to a scale and are outlining under each one of them the plan of procedure. It is very important in laying off your ground to have straight lines, not only for the purpose of retaining symmetry in your orchard but also for the many other advantages in cultivating, irrigating, etc.

Explanation of Diagrams.—The planting distances are represented by the figure 1; all other related distances by multiple parts of 1, so that any desired distance on any of the diagrams may be obtained by the simple process of multiplying the desired planting distance by the distance indicated on diagram.

Square System.—One of the advantages of this system is that it permits cultivation in both ways, especially when the trees become larger. The trees are not equally distributed over the ground, however.

The first step to be taken in this and the following plans is to have your base lines at right angles. In planting a large place, these lines should be obtained by a transit. By studying the plans and observing the directions herewith given, the method of procedure is readily understood.



SQUARE PLANTING

Rule: Square Method.—Multiply the distance in feet between the rows by the distance the plants are apart in the rows, and the product will be the number of square feet for each plant or hill; which, divided into the number of feet in an acre (43,560), will give the number of plants or trees to an acre.

Lay off the base lines A B and A C along two sides of the planting field in such a manner that the angle at A is an exact right angle (90 degrees), and set stakes on said base lines the desired distance apart. Care must be exercised to have all stakes on true lines.

A right angle can be formed in the field by the following method:

Lay off 30 feet from A along base line A B on the diagram, then a point on base line A C will be 40 feet from A and 50 feet from the other end of the 30-foot length.

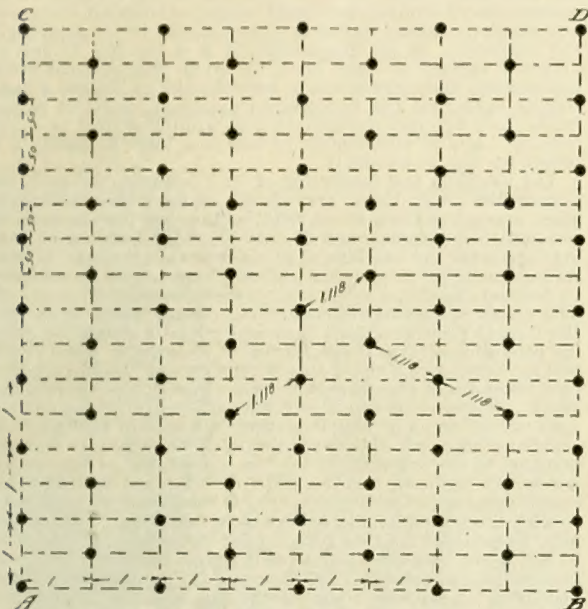
After setting the stakes along the base lines at planting distance apart, the next step should be to set stakes along

secondary lines drawn parallel with base lines A B, and such distances therefrom as will be multiples of the planting distance required, and at the same time no further apart than permitted by the length of the planting chain. This should preferably be of stranded wire No. 19 gauge and provided with numbered metal tags designed to be inserted at desired distances apart.

Experience has demonstrated that a 250-foot chain is the most serviceable. The chain should be stretched for several days before using to prevent too much variation in the field.

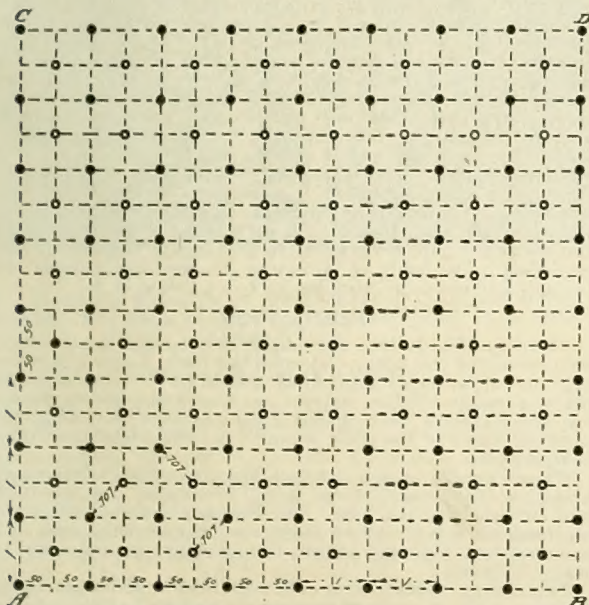
The chain should be provided with a ring and about two feet of surplus length of wire on each end for easy manipulation and stretching. Iron stake pins should be used to hold the chain in position. To do this properly it is advisable to lay off a temporary base line B D from end B of base line A B and at right angles thereto, setting flags on such temporary base lines at distances to correspond with the spacing of the secondary lines.

With the flags as a guide, lay off the planting stakes on the secondary lines, starting always from base line A C. Then all that is required to complete the staking will be to stretch the chain between similar points on the secondary lines and set the stakes at each tag on the chain previously adjusted.



ALTERNATE PLANTING

Alternate System.—We will assume that the planting distance is to be 24 feet apart; and then all stakes on base line A B will be 24 feet apart. The alternate stakes on this line will be for temporary use only. In setting stakes on lines parallel with base A C, the tags of one color should be spaced 24 feet apart, commencing at the zero end. Tags of another color (for use on alternate lines) should be spaced 24 feet apart, commencing at a distance of 12 feet from the zero end of the chain.



QUINCUNX PLANTING

Rule: Alternate Method.—The number of plants required per acre by this method is the same as that required by the "square method" with similar planting distances.

Quincunx System.—The only advantage in this method of planting is in connection with using a filler temporarily, to be dug up as soon as there is any indication of crowding. This permits of double the amount of trees to the acre than in the square system.

Proceed to stake the field in squares. Then without the aid of a chain, place a stake in the center of each square. This is readily determined by sighting along the two diagonal rows of stakes at right angles to each other.

Rule: Quincunx Method.—Multiply the number required to the acre "square method" by 2. The result will be the number of plants required to the acre by this method.

Hexagonal System.—This is the only one in which the trees are equidistant apart in every direction, every tree being at one point of an equilateral triangle.

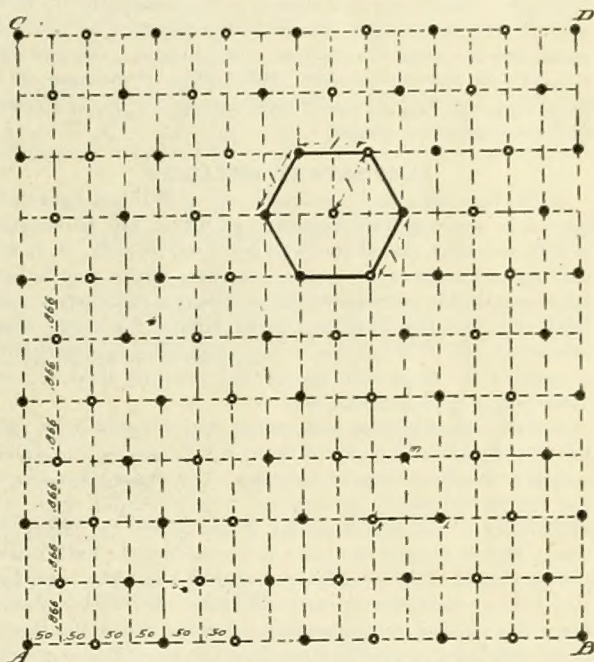
The name "septuple," sometimes applied to this system, refers to the fact that the number of trees in each group unit is seven. Note hexagon on diagram.

To illustrate the plan to be followed, we will consider that the trees are to be set 24 feet apart. Then on base line A B set stakes 24 feet apart. On base line A C set stakes 0.866 times the planting distance apart or every 20.784 feet (or 20 feet, 9 inches).

The first stake on the intermediate line, shown by the hollow circle on the diagram, should be 12 feet from the base line A C and 20 feet 9 inches from base line C D.

In using this method of staking, tags of two different colors should be used, one starting at zero and the other .50 times the planting distance from the zero end of the chain.

For the convenience of the planter we are giving herewith the distances between rows of trees, parallel with base line A B on the diagram, to correspond with various planting distances:



HEXAGONAL PLANTING

As an illustration, if trees are planted 18 feet apart on base line A B, the following row would be 15 feet 7 inches and correspondingly greater distance where the trees are to be planted further apart.

Base line A B 18 ft.	Secondary line 15 ft., 7 in. from A B
Base line A B 20 ft.	Secondary line 17 ft., 4 in. from A B
Base line A B 22 ft.	Secondary line 19 ft., 1/2 in. from A B
Base line A B 24 ft.	Secondary line 20 ft., 9 in. from A B
Base line A B 28 ft.	Secondary line 24 ft., 3 in. from A B
Base line A B 30 ft.	Secondary line 26 ft., 0 in. from A B
Base line A B 36 ft.	Secondary line 31 ft., 2 in. from A B
Base line A B 40 ft.	Secondary line 34 ft., 8 in. from A B

Rule: Hexagonal Method.—First, figure the number of trees required per acre by the "square method," using the same planting distance; then divide by the decimal .866. The result will be the number of plants required to the acre by this method.

BASIS OF THE SIZES AND CALIPER MEASUREMENTS FOR TREES

On all deciduous fruit and nut trees, except almonds and figs, the caliper and height combined determine the grade of the tree.

Not less than 1 inch	represents 8 to 10 ft. trees
Not less than $\frac{5}{8}$ inch	represents 6 to 8 ft. trees
Not less than $\frac{1}{2}$ inch	represents 4 to 6 ft. trees
Not less than $\frac{3}{8}$ inch	represents 3 to 4 ft. trees
Not less than $\frac{1}{4}$ inch	represents 2 to 3 ft. trees

Almonds and figs are inclined to grow stocky, and the caliper measurements will govern the grade regardless of the height of the tree.

Almonds

Not less than $\frac{1}{2}$ inch	represents 4 to 6 ft. trees
Not less than $\frac{3}{8}$ inch	represents 3 to 4 ft. trees
Not less than $\frac{1}{4}$ inch	represents 2 to 3 ft. trees

Figs

Not less than $\frac{5}{8}$ inch	represents 4 to 6 ft. trees
Not less than $\frac{1}{2}$ inch	represents 3 to 4 ft. trees
Not less than $\frac{3}{8}$ inch	represents 2 to 3 ft. trees

Stocks mentioned in this list will be furnished as follows: 5 of a variety at the 10 rate; 50 at the 100 rate; 300 at the 1000 rate.

BLASTING THE HOLES

Much interest has been manifested of late years in dynamiting the holes prior to the planting of the trees. It is absolutely necessary to do this in hardpan soils in order to plant trees at all.

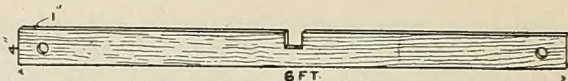
It has been the practice not to blast where the hardpan came within 3 feet of the surface, but actual experience has demonstrated that not only striking and remarkable development in the growth of trees had been secured by blasting where hardpan was found, but in any soil of a heavy, compact nature. It does not take much of a stretch of the imagination to comprehend the fact that a thorough disintegration of the soil, permitting the roots to ramify in every direction, will promote a rapid root and top growth. The drilling of the hardpan is carried on very expeditiously now-a-days by the use of a power drill mounted on a wagon.

IMPORTANT DETAILS

As has been suggested previously, above all things have your ground in the very best condition of tilth. The importance of this one point cannot be dwelt upon too forcibly, for it not only insures more rapid work on the part of the men setting your trees, but in addition to this, not having any clods to contend with, the fine loose soil packs around the roots, when tamped in, and if for any reason there should be no opportunity of settling the trees with water after planting there is very little danger of their drying out.

A stake about half an inch square and one foot long, split out of redwood, will be found to be a very convenient size as a marker for the setting of the trees. Dip about six inches of one end in whitewash, as they can then be readily seen, and should any of the stakes be out of line it will be noticed at once. Before digging the holes it is necessary to have a tree setting board. This is easily made out of a piece of 1x4-6 feet long with an inch hole at each end and a notch in the center. Place the notched center against the stake where the tree is to be planted and push a stake into the ground through the holes at each end of the planter and remove the center stake. The hole may now be dug and this should not be less than 18 inches in diameter and 18 inches deep. After the hole is dug, replace the board over the end stakes in its former position, then plant the tree with the trunk end resting against the center notch in the board and it will be in identically the same place as the stake which was removed to dig the hole.

In setting out, one person should hold the tree in an upright position against the notch in the tree setter, while another shovels or fills in the loose soil around it, first spreading out the roots and rootlets in as natural a position as possible. The surface or friable soil should be put in first among the roots, care being taken to fill in every interstice, thus bringing all the roots in direct contact with the soil. When the hole is two-thirds full, firm the earth thoroughly about the roots, but before doing this draw the tree up to its permanent position. The top three to four inches of soil should not be tramped. A



Planting Board

basin should be scooped out around the tree which will hold at least 15 gallons of water, and unless heavy rains should intervene to fill it up, water should be applied either by bucket or by irrigation. The following day draw in loose soil to fill up this basin, reducing it to a fine condition of tilth and do not tramp in. Guard against setting too deeply, but allow for the settling of the soil, so that when once established the tree will stand about as it did at the time of removal from the nursery rows, or at the outside not more than three inches below the surface of the soil. In the hot interior valleys of this State, it is also very important to protect the trunks with tree-protectors until they can supply their own shade.

BRINGING AN ORCHARD OR VINEYARD INTO BEARING

Just in the proportion that the orchard receives intensive and intelligent care, will it give corresponding returns for the investment of capital, time and labor. Above all things, do not plant too many varieties if you desire to be a factor in the business. As an illustration, it is a mistake to have a different variety on each acre, for when this orchard comes into bearing there are so many varieties and so limited a quantity of each that the commercial packer of dried or canned fruits does not feel inclined to pay what the fruit is worth, because there is not enough of any one kind to make it an object for him to handle it.

The handling and marketing of fruit has assumed such vast proportions that there are always commercial institutions eager enough to enter a new field, and exploit it as soon as the production is large enough to encourage the building of packing houses for the handling of any particular product. Another serious mistake on the part of many growers is to endeavor to harvest big crops when their trees are only two years old. The result of this unwise policy is in many cases to sacrifice the tree to such an extent that just when it should be bringing profitable returns it was burdened too heavily when young, and in consequence either dies when it should be in its prime, or it takes years of extraordinary care to restore it to its proper vigor. The care bestowed for the first two or three years in cultivating, pruning and irrigating, where the rainfall is insufficient to carry the trees through the long dry summer months, is the foundation for the upbuilding of an orchard which will redound to the credit of the owner and give him ample returns for his intelligent care and years of hard work.

Next to thorough cultivation there is nothing which is more vital to the life of a tree than proper irrigation. It is difficult to lay down specific rules on this point, but there are basic ones which can generally be observed in the handling of most deciduous trees, with some exceptions, and instructions pertaining to such cases will be dwelt on under proper heads.

MUST BE CUT BACK

After a tree is set never fail to cut it back. This is now the general practice among the most successful orchardists throughout California, and is the result of years of experience. The following winter from three to four branches, properly distributed around the body of the tree, should be allowed to remain to form the head, and each one of these branches should have at least one-half of their growth removed, cutting away all laterals from them also. These leaders will eventually form the frame work of the tree. The result of the first year's pruning will cause the trees to make an immense growth and will also induce them to grow stocky. The second winter heavy thinning will have to be followed and the pruning should be done with a view of causing the framework branches to spread out. There may be some variation from these instructions, therefore it is advisable to read carefully the information given under each head. The many advantages of this method of pruning are: (1) It makes a low-crowned and a more stocky tree, affording an umbrageous head, and thus protecting it from the hot rays of the scorching summer sun; (2) it enhances the carrying capacity of the tree, thus avoiding artificial props when maturing a crop of fruit; (3) it expedites the harvesting of the crop, by rendering it more accessible to the pickers, thus economizing time and expense; (4) it prolongs the life of the tree by reason of conserving its vital forces, and rendering it less liable to damage in the breaking of limbs and taxing its strength by carrying its fruits "close in."

IRRIGATION

To go specifically into the subject of irrigation is not within the province of this book. Soil conditions bear a very important part in the particular plan, which should be followed to secure the best results. Where water is pumped from wells experience has demonstrated that cement pipes are more serviceable for carrying water to the point where it is to be distributed than anything else.

During the first season for deciduous trees in districts where irrigation is practised, water should be applied not less than four times during the year. For the first two years it is not necessary to irrigate all of the ground between the rows. A space six feet wide will answer the necessary requirements in nearly all cases.

The planter should never lose sight of one important fact, and that is, if the orchard or vineyard can be maintained in a thrifty, vigorous condition through thorough cultivation that is recommended as being preferable to irrigation.

THE APPLE

In the temperate zone no variety of fruit is so widely distributed or has been more extensively planted than the apple. The list of varieties is amazing. "Downing's Fruits" alone lists about 3,500 sorts. Following out the rule, we have scaled down our list of varieties, cataloging only such kinds having distinct characteristics and of value either for home use or from a commercial standpoint. New varieties are never added to our list, unless we are convinced they possess points which make them worthy of cultivation.

Varieties are variable as to localities and in planting in sections where apple culture is pursued commercially, the advice as to the best varieties to plant should be sought from experienced growers. Broadly speaking, the hot interior valleys are not suitable for commercial apple culture on a large scale, as the very rapid and early maturing of the fruit does not seem to be conducive to long keeping, as found in tried localities where conditions are favorable for perfecting fruit having long keeping qualities. Nevertheless it is a fact that where moisture is readily maintained in a soil by either irrigation or by sub-irrigation, many varieties are of such exceptionally large size, present so fine an appearance and are of such excellent flavor that more attention should be given to their culture.



Mr. Roeding Pruning a Four-Year-Old Apple Tree, Showing His Idea of Pruning and Bringing up a Well Shaped Tree.

SOIL AND SITUATION

The best soil for this fruit is a deep, rich loam which will allow the free extension of the roots and is exempt from stagnant moisture. An extremely light soil should be avoided. Apples do exceedingly well in all the coast counties, as well as in the upper foothills and mountains of the Sierra Nevada. In adjacent states and territories to the north and east, apple culture is more general, and may be safely followed wherever the soil and climate are favorable. The keeping qualities and the flavor and coloring of our mountain-grown apples at elevations of 3000 to 5000 feet or more, are indeed hard to surpass.

DISTANCES APART

It is the consensus of opinion among commercial growers that trees should be planted from 25 to 35 feet apart in orchard form. Crab Apples may be planted closer. Trees should be cut back to 20 inches from the top of the ground after being set, except in the higher altitudes, where the snow in settling would cause the branches to break off, thus making it advisable to head the trees at not less than 2 feet from the ground. Apples are very much subject to sun scald and to the attack of the flat-headed borer, the first few years after trees are set out. When headed low, protected with tree protectors, permitting of free circulation of air, and by giving the stem a coating of whitewash to which has been added soap and crude carbolic acid, little danger need be apprehended from either of these evils. The wash is made in the following manner: Dissolve one-half gallon of soft soap in one-half gallon of hot water, adding one-fourth pint of crude carbolic acid. When mixing add five gallons of hot water and enough lime to make a mixture the consistency of paint.

SHAPING THE TREE

In forming the head of the tree no branches closer than one foot from the surface of the ground should be allowed to grow. The following winter they should be cut back at least one-half and thinned out so as not to leave more than four branches to form the frame work, and these should be distributed in such a manner as not to crowd one another as the tree develops. Each one of these branches should be regarded as a subdivision to maintain the wood supply to eventually form a perfect vase formed tree. The second winter not more than two laterals should be allowed to remain and if there is a tendency to crowd, not more than one on the framework branches, and their growth should be again shortened very severely. The tendency as far as possible should be to prune to an outside bud for the first two winters' pruning. With the head now practically formed, the orchardist must shape the tree in accordance with its development, leaving and shortening in the inside laterals if they show a tendency to spread out, or if the inclination is to assume too upright a form, cause them to spread by leaving the outside laterals. The cutting back of the trees and judicious thinning prevent the long bare branches so noticeable in trees which have not been systematically pruned every winter. The effect of this method of pruning is to cause the structural branches to be sturdier, the load of fruit is carried closer to the trunk and even with a very heavy crop of fruit the necessity of propping is eliminated very largely. Props are an expensive item and they also interfere very materially with the harvesting of the crop, so that a method of pruning which will dispense with them is worthy of very careful consideration.

Apples—Prices and Varieties

Our list includes all the desirable varieties for home and commercial planting on the Pacific Coast. Many varieties which cannot be recommended for commercial planting in all sections may be safely selected for the family orchard from the earliest to the latest sorts.

	EACH	10	100	1000
1 year—4 to 6 ft.	\$0 75	\$6 00	\$45 00	\$400 00
1 year—3 to 4 ft.	60	5 00	40 00	350 00
1 year—2 to 3 ft.	50	4 00	30 00	250 00

Alexander. Large; conical; greenish yellow, streaked red. September.

***Arkansas Black.** Valuable market variety; maroon, nearly black. December to April.

Baldwin. This is a very popular variety. Its large size and red color, combined with its crisp, juicy flesh causes it to be in very good demand. November to February.

Ben Davis. Medium to large; flesh-white; sub-acid; yellow, streaked red. October to January.

Bismarck. A very prolific bearer and comes in earlier than any other variety. Large; golden yellow with red cheek. Good cooking and eating sort. September.

***Black Ben.** Improved Ben Davis. Deep dark red; regular and prolific bearer. October to April.

***Delicious.** Brilliant dark red with splashes of a golden yellow at the blossom end. Flesh fine-grained, highly flavored. As a market and table apple it has few superiors. November.

Duchess of Oldenburg. Large; yellow, streaked red; crisp with rich sub-acid flavor; adapted to hot, dry climates. July.

Early Harvest. A favorite apple in July. Medium size, pale yellow; juicy and very much prized for eating out of hand and cooking. Tree heavy bearer. July.

***Esopus Spitzenburg.** Striped red and yellow; bright red; good. A standard in the leading apple sections of the Pacific Coast. November to March.

Fameuse (Snow Apple). Medium; roundish; greenish yellow, streaked red on sunny side; flesh white. October.

***Gravenstein.** Large; striped red and orange. Most popular early variety on Coast. August.

Grimes Golden Pippin. A most beautiful apple; golden yellow, sprinkled with gray dots; very distinct and highly flavored. December to March.

***Jonathan.** Yellow, covered with red stripes; great table and market variety, good keeper and productive. October to December.

***King David.** Fruit large, wine-red, blotched yellow. Its high color and delicious flavor are causing it to be a winner. October.

***King of Tompkins County.** Very large, flesh yellowish, rather coarse, juicy, with a rich vinous flavor; particularly adapted to mountain regions. September to October.

Lady. A little dessert fruit; flat; color lemon yellow with a brilliant red cheek; flesh juicy, crisp and pleasant. December.

***Maiden's Blush.** Large; solid yellow with brilliant red cheek; flesh white, tender, with sprightly sub-acid flavor—a valuable late summer apple. August.

Mammoth Black Twig (Paragon). Large; dark red; flesh pale yellow, juicy, sub-acid; good keeper. November to January.

***Missouri Pippin.** Large; yellow; striped red; tender and juicy; a good market variety. December.

Northern Spy. Greenish yellow striped purplish red; productive; late keeper. November to April.

Ortley (White Bellflower). Large; oblong; whitish yellow; productive; flesh white, juicy, sub-acid. December to January.

***Red Astrachan.** Large; deep crimson. A popular and productive early market variety, adapted to interior valleys. July.

Red Beitigheimer. Large; cream-colored, flushed with light and dark red. September.

***Red June.** Deep red; very showy. One of the best early apples. June.

Rhode Island Greening. Adapts itself to almost any locality. Tree a strong grower and heavy cropper. Greenish-yellow; flesh yellow; fine grained. October.

***Rome Beauty.** Large; exceptionally beautiful; yellow, shaded and striped with red. One of the most popular varieties. November to February.

Smith's Cider. Large and handsome; yellow, shaded red. November to February.

***Stayman's Winesap.** Greenish yellow, splashed with red. Fine market apple. January to May.

***White Astrachan.** Greenish white; very showy; increasing in popularity. July.

***White Winter Pearmain.** A leading variety in late Autumn. Large, roundish, conical; greenish-yellow shaded red; highly flavored, tender and juicy. A favorite commercial variety. November to January.

***Winesap.** Not only an excellent keeper but an all around good market and table variety. Medium, yellow, mostly streaked and splashed with red. Flesh highly flavored; rich, firm, crisp. November to February.

Winter Banana (New). Fancy market and table fruit; large; pale yellow; rather tender, not a long keeper, pink blush. November.

***Yellow Bellflower.** Large, oblong; yellow; a standard in California. October to January.

***Yellow Newtown Pippin.** Large; golden yellow; extensively planted in California. A commercial sort which will always be in great demand on account of its many excellent qualities. January to May.

NEW VARIETIES OF APPLES

	EACH	10
1 year.....	\$1 00	\$7 50

The **Charles Ross**, **Scarlet Nonpareil** and **The Houblon** were introduced from Europe into this state by Mr. J. Leroy Nickel of Menlo Park, California, several years ago and having proved of high value on his trial grounds, we secured buds of these varieties and are now offering a limited quantity of these trees to our customers.

Chas. Ross. Fruit is very large, round in shape. Skin yellow, which is beautifully striped with red. Flesh whitish yellow, crisp and juicy. Makes a fine dessert fruit. October to December.

Scarlet Nonpareil. The tree is a strong thrifty grower. Fruit is medium size. Skin yellow overspread with red. Flesh white, crisp and juicy. A fancy dessert variety. December to April.

The Houblon. The fruit is round and flattened, medium size. Skin dark crimson slightly covered golden russet. Flesh yellowish white, crisp, juicy and highly flavored. December.



Delicious Apple

THE CRAB APPLE

Prices and Varieties

	EACH	10	100
1 year-4 to 6 ft.....	\$0 75	\$6 00	\$45 00
1 year-3 to 4 ft.....	60	5 00	40 00
1 year-2 to 3 ft.....	50	4 00	30 00

Hyslop. Fruit large, deep crimson, thick blue bloom. Tree vigorous, heavy cropper. September.

***Red Siberian.** Yellow, with scarlet cheek. Bears early and abundantly. September.

***Transcendent.** Fruit very large; yellow striped red. Productive. September.

***Whitney No. 20.** A vigorous grower; great bearer; fruit large, smooth, glossy green, striped and splashed with carmine; flesh firm, juicy. August.

***Yellow Siberian.** Beautiful golden yellow. August.

THE PEAR



Bartlett Pear

The pear is a fruit cultivated throughout California and the Pacific States generally, extending into Mexico. It does well in all soils, but succeeds best on a heavy loam. Of the whole range of commercial fruits it seems to thrive in alkali soils and is being largely planted in vineyards and orchards where the vines and trees have been killed. Pears are planted from 24 to 30 feet apart; on quince root, 12 to 15 feet apart. Pruning is usually to the vase form of tree. The fruit should be thinned out on heavily loaded trees or else it is liable to run to small and unmerchantable sizes. The fruit of summer and autumn sorts should be gathered at the first indication of ripeness, the first sign being the tendency of the stem to part from the spur when the pear is gently raised. Late pears should hang as long as possible; a slight frost will not injure them as much as premature gathering. They should then be placed in a dark, cool place, where they will ripen, acquiring a delicious aroma, fine flavor and a melting characteristic pleasing to the palate when eaten. The demand for this fruit both in the green and dried state is increasing yearly, and there seems to be no ground to fear over-production.

STOCKS FOR THE PEAR

We do not recommend the extensive planting of pears in the interior valleys of California on account of blight. We are growing the most of our pear trees on the Japanese Pear Root on account of its greater adaptability. These seedlings are very much stronger growers and adapt themselves to a great variety of soils.

The quince is used as a stock because it causes the pear to become dwarf in habit and permits the planting of trees closer

together. It is no uncommon sight to see trees three feet high loaded with an abundance of pears. The Bartlett in particular and many other varieties of pears will not make a good union when budded direct on the quince; it has therefore been found necessary in nursery practice to bud the Beurre Hardy Pear, which has a remarkable affinity for the quince, and then bud or graft the other varieties of pears on this variety. This is what is known as double working.

PRUNING AND SHAPING

The very marked tendency of the pear to form its branches straight up requires a method of pruning which will not only hold the tree in control but will promote fruit spurs from the framework branches to the very top of the tree. It goes without argument that this is the desideratum which every pear grower would like to achieve. For a number of years while passing on the train from Lawrence station to San Jose on the Southern Pacific Company Railroad, my attention was attracted to the Bartlett Pear orchard of Bracher Brothers, two miles from Lawrence station. The symmetry of the

trees gave evidence that the pruning was being carried on along lines which not only maintained active growth in the trees, but strong, vigorous fruit spurs capable of carrying very heavy crops. The oldest orchard, which is over twenty-five years of age, is in the very best of condition as far as vigor and fruitfulness is concerned and fully exemplifies the rare good judgment exercised in pruning.

It is not at all uncommon for our pear trees to grow 10 feet high in a single season. To many growers it seems a crying shame to cut such trees off, after they are set, to 20 inches from the ground. Our yearling trees having plump and well defined buds all the way up the stem, every one of which will start if permitted to do so, should eliminate any doubt in the growers mind that the tree will not start if cut back as severely as this.

In midsummer, just before the wood begins to harden, from four to five branches well distributed around the stem of the tree, should be selected and then pieces of wood from three to six inches long and slightly notched to hold them in place should be arranged to push the branchlets away from the body of the tree.

In order that the reader may not become confused in his ideas as to the time of performance of the method of pruning followed by Bracher Brothers, I will consider for the sake of argument that the orchard to be pruned was planted in the spring of 1917. In January, 1918, four branches regularly distributed around the tree three to four inches apart, should be selected, counting from the terminal one at the tips end to constitute the framework branches. All of these branches must be cut back so that they do not exceed six inches in length.

If any of them show a tendency to hug too closely to the body of the tree the wooden braces should not be overlooked. In other words the branchlets should be forced outward without interfering with their upward course. In 1919 the new growth starting from these branches should be pruned back at least one-half with the exception of the terminal, which should have its growth shortened in one-third. At least one lateral starting midway on the framework branches should remain, not overlooking the fact that two-thirds of its growth is cut off. In 1920 again the new growth should be severely cut back, leaving the leaders longer, and at this time several new laterals are allowed to remain properly distributed on the main branches, cutting off in turn at least one-half of their growth.

In 1921 the same method of shortening in and building up the frame of the tree is followed.

In later years the general policy of pruning continues with the only alternative that the cutting back of the tree is regulated by its growth.

As a result of this pruning fruit spurs are developed from the point where the framework branches diverge from the body of the tree to its very top.

The fruit is very evenly distributed and in years of enormous crops the leader is used for stringing wires to prevent the lateral branches from breaking down with their load of fruit.

Pears—Prices and Varieties

ON JAPANESE AND FRENCH ROOTS

	EACH	10	100	1000
1 year-6 to 8 ft.	\$0 80	\$7 00	\$50 00	\$450 00
1 year-4 to 6 ft.	70	6 00	45 00	400 00
1 year-3 to 4 ft.	60	5 00	40 00	350 00
1 year-2 to 3 ft.	50	4 00	30 00	250 00

***Bartlett.** The leading commercial pear of California for canning, shipping and drying, and more extensively planted than any other. Large; golden yellow, red cheek; thrives in all parts of California. August.

Beurre Bosc. A fine large variety. Skin yellow and deeply russeted. Flesh juicy and delicious. September.

***Beurre Clairgeau.** This very fine pear is deserving of being planted more extensively than it has been in late years. An enormous bearer of large, highly colored pears. Flesh melting, highly flavored. Good shipper. September.

Beurre d'Anjou. Large; russet yellow, shaded with crimson; juicy and delicious; fine for table and market. September.

***Beurre Hardy.** Large; greenish, covered with light russet. Flesh buttery. September.

***Crocker Bartlett (New).** Fruit oblong, acute, pyriform; large; rich golden yellow; netted and overspread with russet. Flesh is yellowish, buttery, juicy, sub-acid to sweet and rich flavor. Is rather acid until dead ripe. Tree a wonderfully vigorous grower. November to February.

Dana's Hovey (Winter Seckel). Skin greenish-yellow, netted with russet. Flesh yellowish, juicy, with rich aromatic flavor. Heavy bearer. November.

***Doyenne du Comice.** Very large, regular type form; greenish-yellow, shaded crimson; very rich, melting, buttery and juicy. As a shipping pear is running a very close second to Bartlett. October.

***Easter Beurre.** Large, roundish; fine-grained; most desirable. October to January.

Flemish Beauty. Fruit large, pale yellow. Flesh melting, tender and of high quality. September.

Forelle or Trout. The few pears of this variety that have reached the Eastern markets have been gobbled up quickly at very high prices, which indicates its value as a market pear. Large, oblong, pyriform, yellow marked with red and covered with large gray dots; flesh rich, buttery, fine-grained and very melting. September and October.

***Glou Morceau.** Pale greenish yellow, marked with small green dots; flesh fine-grained, with sugary flavor; fine shipper. December.

Howell. Medium; yellow, with minute russet dots. Immensely prolific. August.

Lawson or Comet. Large; bright crimson on yellow ground; good shipper. June.

Madeleine. Medium size, pale yellow, dotted with brown dots. Flesh melting and juicy. First early pear. June.

P. Barry. Large; yellow; juicy, fine-grained; excellent keeper. Tree vigorous grower and heavy bearer. December to March.

***Seckel.** An exquisite pear possessing a distinctiveness of flavor which always identifies it. Brownish-green with russet brown cheek. Flesh rich, unique and very spicy. August to September.

***Winter Bartlett.** Large; yellow, slightly russeted on one side; tender, juicy. Flavor almost identical with summer Bartlett. One of the finest winter varieties, but we do not recommend it for the hot interior valley. November.

***Winter Nelis.** Medium; yellowish green, gray-russet dots; flesh yellowish white; excellent shipper. An old standard, recognized as one of the best winter pears. December.

SPECIAL VARIETIES OF PEARS ON PEAR ROOTS

	EACH	10
1 year.....	\$1 00	\$7 50

SPECIAL VARIETIES OF PEARS

Mr. J. Leroy Nickel, of Menlo Park, Cal., has combed Europe in his endeavor to secure from there the very best varieties of fruits grown. His grounds at Menlo Park fully demonstrate his keen interest in horticulture. We were fortunate in securing from him scions of some of his best varieties of Pears of which he has a large collection. We are offering them for the first time.

Levard. The fruit is medium to large, pyriform shape, skin dark green, bronzed on one side. Flesh firm, sweet and melting with a most delicious flavor. An excellent variety for cold storage purposes. December.

Passe Crassane. Fruit is large, round; skin green and when ripe is yellowish with numerous russet dots. Flesh is white, tender, juicy and of excellent quality. A most delicious fruit. December.

Triomphe De Vienne. An attractive fall ripening pear. The fruits are large, conical. Skin bright yellow, with russet markings and cheek blushed red on sunny side. Flesh white, melting and of excellent flavor. Tree a strong vigorous grower. September.



One-Year Pear Tree Pruned, Demonstrating Method of Distributing Branches; Also Simple Device, Causing the Framework Branches to be Pushed out from the Body of the Tree.

Pear Budded on Quince Roots

"Double-worked" on Beurre Hardy Pear

The Beurre Hardy Pear is used for budding on the Quince because of its great affinity for this stock. Many other varieties of Pears will not take on the Quince; we therefore bud the Beurre Hardy first on the Quince stock and then in turn bud the various varieties listed below on the Beurre Hardy.

	EACH	10	100	1000
1 year-4 to 6 ft.	\$0 80	\$7 00	\$60 00	\$550 00
1 year-3 to 4 ft.	70	6 00	50 00	450 00
1 year-2 to 3 ft.	60	5 00	40 00	350 00

Bartlett
Beurre Clairgeau
Beurre d'Anjou
Beurre Hardy
Dana Hovey
Doyenne au Comice
Easter Beurre
Flemish Beauty

Forelle or Trout
Glou Morceau
Howell
Madeleine
P. Barry
Seckel
Winter Bartlett
Winter Nelis

For description of varieties not given see Pears on Pear roots.

THE CHERRY

Strictly speaking the sections in which cherries can be grown seem to be limited to the counties adjacent to the San Francisco bay region, although there is no doubt that in many of the counties north of the bay and receiving the benefit of the tempered sea air, that cherry growing should be engaged in. The enormous profits realized from cherry orchards and the popularity of the fruit in the east; the very excellent keeping qualities of many of the varieties, even when picked quite ripe, present a series of reasons for extending the field for the planting of cherries over a greater territory.

The dwarfing tendency so often attributed to the Mahaleb, is not borne out by observation; on the contrary, its effect is to give the tree a greater bearing surface and its influence is more in the direction of preventing the excessive growth of the branches. Possibly the loss of trees which many growers have sustained, through sour sap, may be due to the use of the Mazzard root. That the Mahaleb is a more vigorous grower and has a much better root system is generally recognized by all nurserymen.

PRUNING

It is simply disheartening to see some of the unpruned cherry orchards in Solano county, which stands out pre-eminently as the most important cherry section in the State today. Compare the quality and quantity of fruit produced with the trees that have been systematically pruned and the whole fallacy not to cut a cherry tree after the head has once been formed falls to the ground.

The trees should be headed back to 24 inches. Three to four branches should be allowed to grow to form the head of the tree and these should be distributed in such a manner as to prevent forks, as the tree has a tendency to split as it grows older. The first winter these branches should be cut back one-half and the following season not more than one to two branches should be allowed to grow from those left the first year. The third season the new growth should be shortened in about the same, depending on the growth, and some of the laterals appearing near the point of divergence from the main stems should not be cut off but merely shortened in, for the shade they furnish is one of the essential features in the development of the young trees. This same method of pruning should be followed until the fifth year. In after years the cutting should be less severe, but pruning, unless the trees should show too much of a tendency to spread out, should continue every year. This promotes fruit spurs on the large as well as on the smaller branches and in harvesting a crop the even distribution of the cherries from the bottom to the top of the tree cannot but help bring about a feeling of pride in the mind of the grower over the results obtained. There are cherry trees in the Ulatis Ranch property near Vacaville, managed by Mr. H. A. Bassford, where with one or two exceptions, one of the cherry orchards now fifteen years old consisting of Bing, Lambert, Royal Ann, Black Tartarian, has been pruned annually. The trees in that particular orchard are simply beauties and many of them had during the past season no less than 500 pounds of



Six-Year-Old Cherry Tree. Note Fruit Spurs that Appear All Over Main Limbs, Demonstrating the Advisability of Annual Pruning of the Cherry.

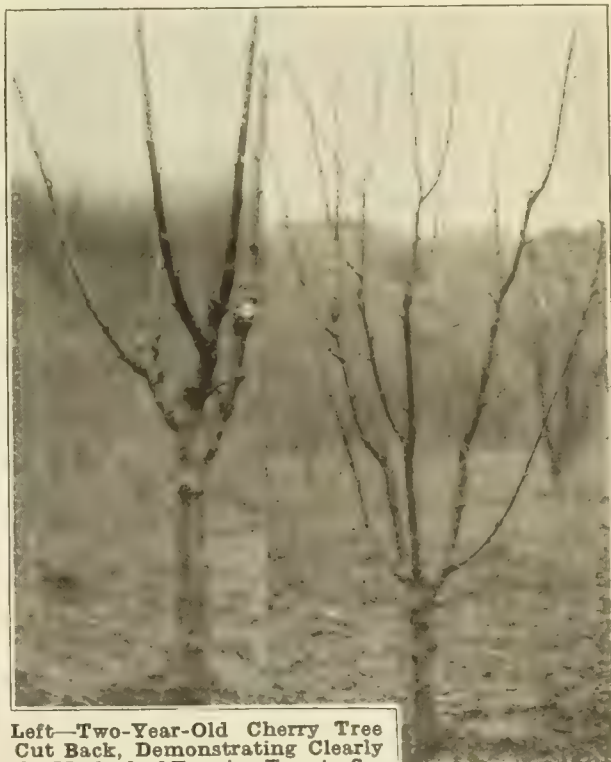
Being the initial stone fruit of the season probably accounts in a way for its popularity.

Exceptionally fine cherries are grown in Oregon and Washington. California's advantage over these two states is not so much in the quality of the fruit as it is in the time of ripening. Our season is from May 1 to June 15, while in the more northern states the season opens on the latter date and closes about July 15th. In the upper San Joaquin valley, notably around Stockton, in many sections of the Sacramento valley, and in the foothill sections adjacent thereto, cherries are grown quite successfully in the alluvial soils. Around Fresno, cherries should only be planted for home use, giving the preference to the Morello types. Cherry trees should be planted 24 feet apart at the very least and on exceptionally rich soils, 30 feet would be better.

STOCKS FOR THE CHERRY

For years it has been absolutely fixed in the mind of planters, and many of them experienced growers, that the only root for the cherry in California is the Mazzard (*Cerasus avium*.)

According to all reports, the Mahaleb root (*Cerasus odorata*) which is extensively used in the East for growing cherries, would not do in California, and nurserymen, because of the prevailing prejudice, have hesitated to use it. While on a tour of investigation in Solano county I found to my surprise in the Vacaville district several young orchards and one old orchard of forty years or more where the sweet cherries on this root were not only very thrifty, but were producing very heavily on the Mahaleb root. One of the most experienced growers in the valley, Mr. H. A. Bassford, said that his preference for this root was due to the trees being longer lived; greater prolificness and the evident influence of this root on the growth of this tree.



Left—Two-Year-Old Cherry Tree Cut Back, Demonstrating Clearly the Method of Topping Tree to Secure Well Balanced Head. White Spots Show Where Tree was Cut Back First Year. Right—Four-Year-Old Black Tartarian Cherry Loaded with Fruit Spurs Showing a Well Balanced Tree Due to Proper Pruning.



Bing Cherry

cherries fit to ship. The Gummosis, a gum disease, has been overcome in this orchard by slashing the body and framework branches every other year in November.

In this same orchard the cherry trees bore indifferently for some years. This has been corrected by the placing of a large colony of bees in the orchard. These bees carry on the work of pollination, causing the trees to bear heavy crops regularly each year.

Not only do they benefit the cherries but undoubtedly are responsible for the splendid crops of other fruits which are harvested annually on this large fruit ranch.

We believe the placing of a colony of bees in any orchard will be found a splendid investment.

Cherries—Prices and Varieties

On Mahaleb and Mazzard Roots.

	EACH	10	100
1 year-6 to 8 ft.	\$0 80	\$7 00	\$50 00
1 year-4 to 6 ft.	70	6 00	45 00
1 year-3 to 4 ft.	60	5 00	40 00
1 year-2 to 3 ft.	50	4 00	35 00

The Hearts, or Bigarreus, are the sweet Cherries, the trees being strong and vigorous growers. These are designated by the letter "H"; the Dukes, or Morellos, which are the sour Cherries, by the letter "D." These grow slowly, the branches are slender; the leaves are thicker, smaller and of a deeper green.

***Abundance.** H. Tree a strong grower and an early bearer of very heavy crops. Fully twice as productive as Royal Ann, fruit larger, handsomer, as firm, better form and color, sweeter and far more delicious; never cracks. When canned, in appearance and color the very best. Late May.

***Bing.** H. One of the grandest blacks. Its large size, firmness and delicious flavor have caused it to be in active demand. A thrifty grower. A shy bearer as a rule, but this has been overcome by mixing it with other varieties, particularly Lewelling. Middle of June.

***Black Tartarian.** H. Very large, purplish-black, tender, juicy cherry of delicious quality. Tree very vigorous grower and heavy bearer. Most profitable cherry in California.

***Burbank.** H. This cherry has been tested by practical cherry growers and its commercial value has been fully established. Ripens earlier than the Early Purple Guigne, and its size, firmness and flavor far surpass that variety. Averages medium to large in size; skin deep purplish black; tree a beautiful grower, vigorous and erect. Early May.

Centennial. H. A seedling of Napoleon Bigarreau, larger than its parent and beautifully marbled and splashed with crimson on a yellow ground; flesh firm, sweet; a good shipper on account of its remarkable keeping qualities. Early June.

Chapman. H. A seedling of Black Tartarian and in many respects similar; earlier; follows Early Purple Guigne; large and very fine and worthy of more general planting. April and May.

Early Purple Guigne. H. One of best. Purple; tender, juicy, sweet. April and May.

Early Richmond. D. Medium; dark red; juicy; very productive. Middle of May.

English Morello. D. Large; deep red; tree small and slender. July.

Lambert. H. Its large size, rich, glossy, deep red color, firm flesh, unsurpassed flavor, combine to make it one of the leading market varieties. Middle of June.

Lewelling. H. (Black Republican; Black Oregon.) Large size, having the size and color of the Black Tartarian and the firmness of Royal Ann. Very profuse bearer; late. Splendid, profitable shipping variety. July.

May Duke. D. Large; rich dark red; flesh tender, juicy and sub-acid; an excellent variety, and one of the earliest of its class.

***Napoleon Bigarreau.** H. (Royal Ann.) A magnificent cherry of largest size; pale yellow with bright red cheek; flesh firm, sweet; most popular all-round cherry. Late June.

Reine Hortense. H. Very large; beautiful, glossy red; a good bearer; excellent for canning, but too soft for shipment.

THE PLUM

The plum in its geographical distribution on this coast, particularly in California, covers a wide range of soils and climates, being both thrifty along the Coast regions and the interior valleys and well up into the foothills. Indeed, so wide is its range that it is safe to say that every county in the State boasts of its plum orchards excepting, perhaps, the city and county of San Francisco.

This adaptability is undoubtedly due largely to the various stocks on which the different sorts are budded or grafted and also to the fact that plums are either shipped green or canned, very rarely dried. There has been a tendency on the part of many growers to plant plum trees too close together. The Japanese types are of a less spreading habit than the European, but even the former should not be planted closer than 24 feet apart. Where the conditions are favorable for a strong vigorous growth, it is a mistake to plant even this close.

STOCKS

The Peach and Myrobolan root are the standard stocks for the plum, and these two roots seem to meet practically all the conditions where the plums are raised, the peach root being given the preference on the sandy, loamy soils and the Myrobolan on the heavier and damper soils. It is quite possible within a few years that other roots such as the Mussel, so extensively used in Great Britain and on the continent of Europe in preference to any other root for so many of the stone fruits, will find conditions equally as congenial with us. The only way to raise this stock is by layering, making it rather expensive. Several varieties of plums including the following lack affinity for the peach root: Yellow Egg, Jefferson and Washington. On very gravelly soils the almond root could be used

to advantage, nearly all varieties doing well on this root. It has not been used to any extent, however.

PRUNING

To deliberately say that a plum tree should be pruned regularly every year would be just as nonsensical as a recommendation never to prune the plum. No absolutely fixed rule can be adopted when it comes to pruning, whether it be a plum or anything else, for in the final analysis the grower must study his conditions and decide for himself the policy to pursue.

There can not possibly be any argument, however, in shaping the trees when they are young and to neglect to train the branches which will eventually be the main supports of the tree, would be just as sensible as being indifferent as to the permanency of the foundation of a substantial dwelling. I have no patience with the man who will not cut his trees back to at least 20 inches after they are planted and who will not endeavor to have the framework branches properly distributed around the body of the tree and who will not shorten them in for at least four years and then develop a well-balanced sturdy tree. If, in after years, larger crops are produced by allowing the trees to grow at their own sweet will, except to cut out interfering branches, this is a matter of judgment.

The planting and the bringing of an orchard into bearing is no small undertaking. It not only taxes the average man's purse strings to the limit but in addition it means the employment of every resource at his command in labor and brains to reach the goal for which he is aiming. Therefore he must have returns for the combination of forces which have caused him to build vigorous, substantial trees.

If I were growing the orchard my decision would be to prune the trees regularly every year even after they reach the four-year age limit.

It is not possible to say definitely how much of the annual growth should be removed, but that the trees should be pruned to promote fruit spurs, according to my idea, is the only practicable and sensible plan in the handling of a plum tree. As I see it, a tree with fruit from the very crotches to the top ends and evenly distributed throughout, is by far more preferable than to have a total absence of lateral and to have all the fruit spurs on the upper limbs. Where the trees are not cut back this is just what happens. After a number of years, depending on the vigor of the tree, practically no new wood is being made, the tree is apparently lacking in vitality, the blossoms are weak, and there is a general debility in the tree. There is only one recourse then. Cut the tree back and build a new top and be out of a crop for at least three years until the tree is again back where it belongs.

Plums—Prices and Varieties

On Peach and Myrobolan roots:

	EACH	10	100
1 year 6 to 8 ft.	\$0 80	\$7 00	\$50 00
1 year 4 to 6 ft.	70	6 00	45 00
1 year 3 to 4 ft.	60	5 00	40 00
1 year 2 to 3 ft.	50	4 00	35 00

Except Vesuvius. See special price.

Anita. A new introduction of the Domestic group. Strong grower and very prolific. Fruit sweet; freestone, and yellow-fleshed. A good shipping plum and can be dried whole or pitted. Last July.

Apex Plumcot. This new fruit ripens with the earliest plums. Tree a strong, compact, upright grower and good bearer even where apricots cannot be grown, and in seasons when some plums are failures. Fruit very large; color deep pink or light crimson, freestone; flesh honey-yellow, firm, rich, aromatic. A valuable market variety. June.

Bavay's Green Gage (Reine Claude de Bavay). Large; greenish yellow; juicy. August.

Beauty. Another late introduction, having been accorded a leading place by the growers of shipping plums. Tree a most remarkably vigorous, upright grower, with large, healthy foliage. Fruit beautiful, oval, crimson with amber-crimson flesh. The largest of the early plums and ripening ten days earlier than Santa Rosa. June.



A Two-Year-Old Plum Tree Showing Framework Branches Shortened In. Cuts Made First Year are Indicated by the Greater Diameter of the Branches.

A Three-Year-Old Plum Tree Already Giving Evidence of the Much Desired Goblet Form



Santa Rosa Plum

***Burbank.** Medium; globular; cherry-red, with lilac bloom; flesh yellow. Late June.

***Cherry.** Fruit medium size, bright red, sweet, juicy and sub-acid. Valuable for jelly. June and July.

***Climax.** Very large; deep, dark red; flesh yellow, delicious flavor. Tree vigorous and very productive. Middle of June.

***Clyman.** Reddish purple; firm and sweet. Valuable for shipping; very prolific. June.

***Diamond.** Tree wonderful grower, heavy and regular producer. Fruit very large, oblong; dark purple with deep bloom. A splendid shipper. Middle of July to early August.

***Formosa.** A grand shipping fruit. Tree is a vigorous, upright grower with large, cherry-like foliage; fruit of the largest size, heart-shaped and of light cherry-red color. Flesh pale yellow, usually firm, sweet, rich, delicious, with delightful flavor. Ripens July.

***Gaviota.** Ripens two weeks after Formosa; is of a deep red-dish purple color; flesh honey-yellow; fragrant and sweet to the pit, which is so small in comparison with size of fruit that it might almost be called "seedless." July.

***Giant.** Tree handsome, vigorous grower. Fruit large; flesh yellow; flavor good; freestone. Fine market variety. Late August.

***Grand Duke.** Tree regular and prolific bearer. Dark purple; flesh greenish yellow. Juicy, firm, sweet, with rich flavor. Large, measuring $2\frac{3}{4}$ by $1\frac{1}{8}$ inches; prune shaped. A most profitable shipping variety, commanding good prices in the Eastern markets. Middle August.

***Green Gage.** Medium round, skin tender, yellowish green flesh. Separates freely from the stone. Middle of July.

***Jefferson.** Large; greenish yellow; one of the best for canning. July to September.

***Kelsey Japan.** Rich yellow overspread with red; flesh yellow. Its large size and extended period over which it ripens make it invaluable as a shipping plum. Firm. July to September.

***Paragon.** Fruit round, firm, sub-acid, color deep rich red, turning to purplish-black when fully ripe. Makes delicious jelly. Similar to the well-known Cherry Plum but a marked improvement in size and quality. Tree very hardy, strong grower and heavy bearer. August.

***President (New).** An English plum of very recent introduction. Fruit uniform, large and shaped like Yellow Egg. Skin purple; flesh yellow and of fine texture. In the Vacaville district it is recognized as the most promising of market plums. Sept.

***Santa Rosa.** Regarded as one of the best of the Japanese type of plums. Very large; deep purplish crimson color, with pale blue bloom. Flesh yellow, streaked and shaded with crimson. As a shipping plum it has few equals. Ripens middle of June.

***Satsuma (Blood Plum).** Large; dark red from skin to pit; firm; ships and keeps well; juicy. Early July.

***Shropshire Damson.** Oval; dark blue; very firm; flesh greenish, juicy and sprightly. Late September.

***Vacaville Blue (California Blue).** A seedling plum originating near Vacaville, California. The fruit is large. Skin deep purple, flesh yellow, firm and of fine flavor. On account of its size, appearance, flavor and excellent keeping qualities makes it an excellent shipper to the eastern market. Ripens same time as Climax, Santa Rosa, about June 20th to 30th.

***Washington.** Large; yellow, with crimson blush; flesh yellow, firm, sweet. Fine for canning. Early August.

***Wickson.** Tree strong, upright grower and heavy bearer. Heart-shaped; flesh amber; juicy. Early August.

***Yellow Egg.** Showy market variety and good for canning. Large; oval; deep golden; juicy; rather acid. July and August.

SPECIAL VARIETY OF PLUMS

Vesuvius. A foliage tree like the Purple Leaved Plum but vastly superior to it. A much more vigorous grower; branches inclined to droop; foliage very large with a very much crumpled surface with a pronounced crimson color intermingled with a lustrous green. Fruit nearly globular, three and one half inches around and a fair quality for cooking.

	EACH	10
6 to 8 ft.	\$1 25	\$10 00
4 to 6 ft.	1 00	7 50

THE PRUNE

Prunes and plums are so closely allied that remarks pertaining to one fruit are equally applicable to the other. Practically speaking the prune is characterized by its sweet firm flesh and has the property of drying and curing without the seed being removed.

The varieties of prunes having their origin in France seem to find conditions more congenial in the counties clustering around San Francisco Bay than in any other part of the State. There are certain favored spots more particularly in the silty soils of the river bottom in the Sacramento and San Joaquin valleys, where the prunes not only are very thrifty but are very dependable in their production of crops. From a standpoint of quality the dried product from the interior is inferior in quality to the prune from the coast counties. One of the strange anomalies in connection with the growing of the French type of prunes is that in the coast counties even with their much lower average of temperature units in the summer months, the harvesting season commences at least two weeks earlier than in the interior, while the apricot in the same section is six weeks later in maturing than the apricots in the interior valley counties. Trees should be planted from 24 to 30 feet apart.

STOCKS

It is very difficult for nurserymen outside of California to grasp the situation concerning the demand which exists for trees in a variety of roots. The answer is that in California the growing of fruit is just as much a great commercial business and is just as much a staple as the growing of cotton and sugar in the Southern States.

The stability of the tree and its fruitfulness must be guarded by the selection of a root best adapted to the particular soil in which the grower contemplates planting, therefore the extreme care in securing the right root. The Myrobolan root is preferred by most growers although there are many soils on which this root is used where the peach could be used to advantage. In behalf of the peach root it may be said that the trees are stronger growers than on Myrobolan although not quite so long lived. There is another point which must not be lost sight of and that is that there is a lack of affinity of some varieties of prunes for the peach root, among them may be mentioned Robe de Sargent, Imperial Epineuse, and Sugar.

The Robe de Sargent lacks affinity for the almond root while the other two take well on this root and make good unions.

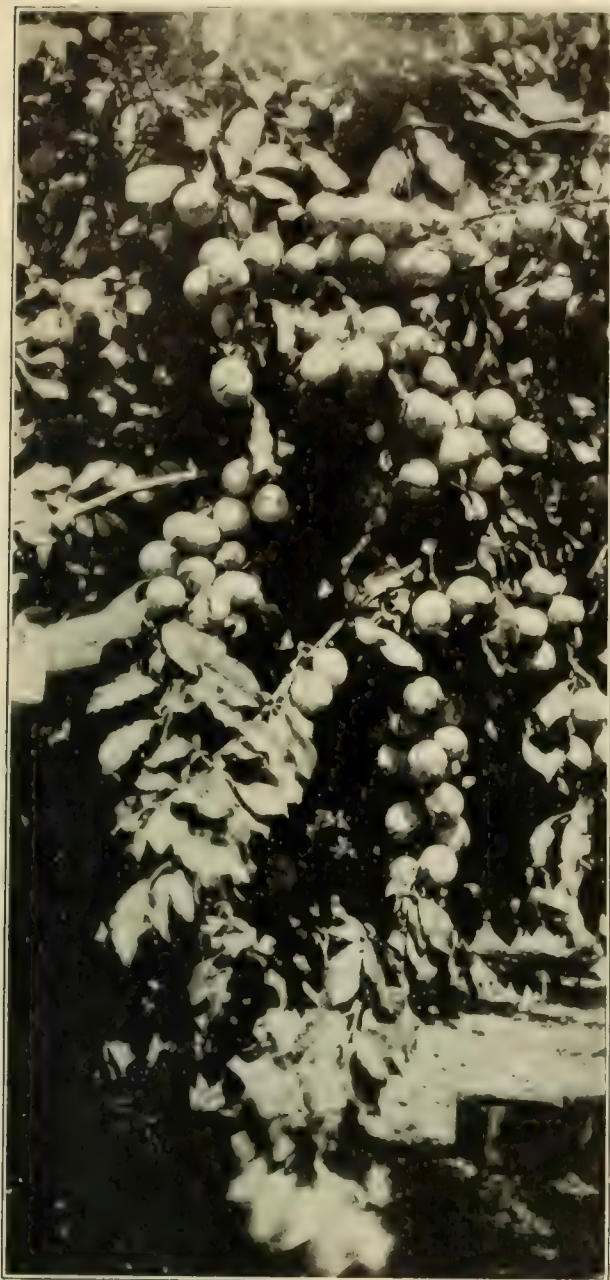
PRUNING

Instructions about pruning given for the plum will serve equally as well for the prune.

THE INDUSTRY

Practically sixty per cent of our output of prunes is exported to Europe and the demand is increasing. The very fact that the prune is not the despised article it used to be in the United States is a sufficient indication that the future of the prune is assured. In 1897 the output from California was 97,780,000 pounds, and in 1916, 175,000,000 pounds.

In Oregon and Washington the drying of prunes has developed, into quite a business. The French prunes do not bear well however, and the Fellenberg, called the "Italian" in the north west, is the only prune used for drying.



Sugar Prunes in Orchard Belonging to Mr. Robt. Wood, Fresno County. This is a very Profitable Variety in the San Joaquin Valley.

Prunes—Prices and Varieties

On Almond, Myrobalan and Peach roots.

Except Improved French. See special prices.

	EACH	10	100
1 year 6 to 8 ft.	\$0 80	\$7 00	\$50 00
1 year 4 to 6 ft.	70	6 00	45 00
1 year 3 to 4 ft.	60	5 00	40 00
1 year 2 to 3 ft.	50	4 00	30 00

Fellenberg (Italian Prune). Large; dark purple; flesh greenish yellow; freestone. August.

***French (Petite Prune d'Agen).** Medium size; purple; sweet and rich; standard for drying—the most extensively planted prune. August.

German (Quetsche). Long; purple blue bloom; flesh green, sweet; freestone. August.

***Hungarian.** Tree is a vigorous grower, and heavy bearer. Very large; reddish violet; juicy, sweet; profitable for shipment. August.

***Imperial Epineuse (Clairac Mammoth).** Very large; violet-purple; exceedingly sweet. Very valuable for drying and a great market variety on account of its size and quality. September.

***Robe de Sargent.** Large; deep purple; flesh rich and sugary. Fine prune for drying; ten days earlier than French prune. August and September.

Silver Prune. Largest size; pale yellow; profitable for bleaching and canning. September.

***Standard.** This late introduction is a cross between Tragedy and Sugar Prune. The trees are heavy bearers, and although vigorous growers are of dwarfish habit. Well-grown fruits measure four and a half inches around one way by nearly six inches the long way. Skin dark, reddish purple, with a heavy blue bloom; flesh honey-yellow, fine-grained, juicy, sweet and a perfect freestone. August.

***Sugar.** Dark purple; flesh yellow, tender and rich; valuable for shipping green and for drying; a great bearer. Early August.

***Tragedy.** Dark purple; flesh yellowish green, very rich and sweet. Valuable shipper. Early July.

FRENCH PRUNE (IMPROVED)

On Myrobalan and Peach roots.

This improved type of French Prune was discovered by us at Suisun, Solano County. Years of observation have demonstrated that this new variety is identical in every particular with the French Prune with the exception that the prunes average 30s to 40s from year to year. The marked distinction in the tree is its weeping habit. It produces without fail every year heavy crops of fruits. This demonstration of selection must appeal to every fruit grower.

	EACH	10	100
1 year 6 to 8 ft.	\$0 90	\$8 00	\$60 00
1 year 4 to 6 ft.	80	7 00	50 00
1 year 3 to 4 ft.	70	6 00	45 00
1 year 2 to 3 ft.	60	5 00	40 00

THE APRICOT

The apricot is a native of Asia Minor and the higher regions of Central Asia. As a commercial proposition, California has practically a monopoly in apricot culture as no other section of the Union produces it in quantities at so small an expense and so little risk of failure in crops. In appearance it is perhaps the handsomest of all stone fruits and contains less acid.

For canning, evaporating and drying purposes, as well as for use in the fresh state, the fruit can hardly be excelled. It seems particularly adapted to the Coast counties, where the fruit attains the largest size and the highest flavor. In the interior valleys it has the distinct advantage in that it ripens its fruits fully a month earlier than in the cooler sections of the State. Never plant apricot trees closer than 24 feet. My recommendation is to plant 30 feet.

STOCKS

Owing to the success with which the apricot can be budded on different stocks, it adapts itself to a wide range in the matter of soil, moisture and climate. Apricot trees are budded on peach, apricot and Myrobalan plum roots. Apricots on almond should never be planted, as there is no affinity between the two stocks and the trees will break off at the bud even when several inches in diameter. The only practical way to have the apricot on almond is by budding a peach on this stock and then rebudding the peach with the apricot. The peach root is well adapted to a light, well drained, warm, sandy soil and it has the natural tendency to develop a sturdy, magnificent, fruitful tree. The Myrobalan root withstands a surplus of moisture, is rather free from sour sap, has a tendency to cause trees to be longer lived, adapts itself to moist and very heavy soils.



One-Year-Old Apricot Tree with Frame Branches Shortened to Promote Steadiness.



A Three-Year-Old Apricot Tree With Well Balanced Head and Already Giving Indication by Blossoms of the Possibilities when it Comes into Full Bearing.

PRUNING.

The very fact that the apricot trees are strong, straggly growers obviously makes it necessary to prune the trees carefully for at least the first four years of their existence. The trees should be cut back to twenty inches after they are set. It is safe to cut trees back to this height even if they are extra large and devoid of any lateral branches below where the tree is nipped off, because of the plump, well developed buds on the stem of the tree. Not more than four branches should be left the following year after planting, having them as carefully distributed around the stem as it is possible to get them. In the second year these branches should have at least two-thirds of their growth cut off. This severe cutting promotes not only a stocky well balanced tree but insures a vigorous growth and encourages a compactness that cannot be secured in any other way.

In the third year the pruning should be far more moderate otherwise there is a tendency to make the tree brushy to such an extent that many of the laterals starting from the framework branches just above the point where they diverge from the main body of the tree are smothered out. In the fourth year the pruning should be more a matter of shaping and controlling the branches making a rampant growth. The tree in its fourth year should have a pronounced wide open goblet form and it will unquestionably have, if the pruning has been properly done.

There is no use denying the fact that the apricot is distinctly a creature of environment. It is an open question as to whether or not any benefit is derived as far as fruitfulness is concerned from summer pruning. A grower must determine this for himself. The results obtained must be his answer. Some varieties after they have reached bearing age if pruned heavily every year will not produce sufficient fruit to pay for cultivation. This has been demonstrated to be a fact in the handling of the Hemskirke, which if pruned heavily, is a very shy bearer. For size and flavor there are few apricots that will compare with it unless it is the Moorpark. This variety has thoroughly identified itself as being so shy a bearer that commercially it is no longer seriously considered. As stated in the introduction I am solely responsible for any recommendations concerning pruning in this catalogue, at the same time, if I have any egotism it is not so pronounced that I am not willing to give credit to the successful men who practice the very methods which I champion. Furthermore, in my opinion, although my suggestions may be of value to the reader, nevertheless, wherever it is possible for a planter to personally visit a property and absorb from the owner the methods that have been followed, there is nothing to my mind which will be more conducive to success than to follow along the same lines as the man who demonstrates by an actual example that he is on the right track. Possibly the largest acreage in apricot trees is found in Santa Clara County. It is the exception to find an instance where trees are not pruned. There are very few if any properties in the valley in which thorough and intelligent

management is more manifest than in the 500 acres under the control of Mr. H. E. Losse, recently deceased. He had 120 acres of 15-year-old apricot trees equally divided between Blenheim and Hemskirke. The annual production varies from 750 to 1000 tons of green fruit. No finer example of pruning could be found anywhere for the trees are loaded with fruit which are of the largest size and evenly distributed from the framework branches to the extreme top of the trees. The trees are never summer pruned. Up to three years ago the treatment of both varieties was the same, with the result that the Hemskirke variety produced very light crops. Now that the pruning of the Hemskirke has been confined to the removal of interfering branches the yield has been exceedingly satisfactory. It will be necessary after a period of five years to head in these trees very severely to develop new wood in the trees banded in this manner.

Apricots—Prices and Varieties

On Apricot, Myrobolan and Peach Roots:

	EACH	10	100
1 year 4 to 6 ft.	\$0 70	\$6 00	\$50 00
1 year 3 to 4 ft.	60	5 00	45 00
1 year 2 to 3 ft.	50	4 00	30 00

***Blenheim (Shipley).** Above medium; deep yellow; juicy and rich flesh. Practically the same as Royal. Any difference is in the fact that Blenheim is larger. In great demand both for canning and drying. Trees regular and heavy bearers. Middle of June.

***Hemskirke (Alameda Hemskirke).** Bears so close a resemblance to Moorpark, it is hard to distinguish them apart. Equal to it in flavor. Its qualities may be summed up as a Moorpark which bears the largest and finest quality of apricots, not being surpassed in flavor even by the Royal. Flesh bright orange; tender. June.

Large Early Montgamet. Fruit large, compressed; golden yellow. Early June.

***Moorpark.** Very large; red on the sunny side; flesh bright orange. Late June.

Newcastle Early. Medium; fine quality; good shipper; two weeks earlier, and more highly colored than Royal; early, regular and good bearer. Very valuable on account of its earliness. First of June.

Pringle. Small; clingstone; good quality; very early. Middle of May.

Routier's Peach (Peach; Bergetti's French). Yellow; flesh yellow; juicy. June 15.

***Royal.** The most extensively planted variety. Medium; flesh pale orange, with rich, vinous flavor. See Blenheim. Early June.

***Tilton.** Orange-yellow, with pronounced flavor; planted largely in San Joaquin Valley, where it is considered the leading apricot for shipping, canning and drying. Has produced wonderful returns in many districts during past years June.



A Six-Year-Old Apricot Tree with a Well Developed Head as a Result of Regular and Systematic Pruning.

THE PEACH



Selma Cling Peach

The peach, like the prune and apricot, is indeed a fruit of commercial importance, and finds wide distribution not only in California, but throughout the length and breadth of the Pacific slope. For size, flavor, color and shipping qualities the peaches grown in this State have a national reputation. The tree prefers a light, deep, sandy loam, preferably inclined to be dry rather than too moist, but well drained. It should be not less than three or four feet deep, the more depth the better.

Fresno County is the peach center of California, having a total according to reliable estimates, of not less than 43,000 acres. The Libby McNeil & Libby Cannery, located in Selma, the great peach center of the county, handles no less than 8,000 tons of peaches annually in its plant, and this is only a very small part of the canning peaches raised yearly in Fresno.

Commercial importance of peach growing can not be estimated in dollars and cents, for the great territory over which the peach thrives with the practical certainty of a crop one year with another makes the field a very promising one.

The fact that the drying of peaches can be carried on so simply without any loss of fruit for the sun does the work after the peaches have been halved, and (the pits extracted) exposed to the fumes of sulphur for four hours on wooden trays. The drying of peaches is a business in itself, just as much so as the shipping of the fresh fruit and the canning business.

In the last analysis it presents the finality in the industry for all the fruit is cared for and there is no wastage. There has been more or less prejudice to dried peaches due to their fuzzy skin. This has been overcome now by a process for which the Lovell and Muir seem to have a decided advantage, of removing the peel by a recent invention even after the fruit is dried. That the consuming public appreciates this grade of fruit is demonstrated by the high prices which dried peeled peaches sell for in the market.

As a matter of fact the orchardist at a very small additional expense could easily do this himself. All that is necessary after the peaches have been halved, regardless of variety is to immerse the fruit in a hot lye water maintained at a tempera-

ture of 200° Fahrenheit for forty seconds. Dissolve one pound of lye in ten gallons of water. The peaches after being given the lye dip are then immersed in a tank of cold water not only to remove every vestige of lye but to cause the skins to slough off. It will pay the owners of large orchards to purchase a lye-dipping machine such as is used in the canneries and known as a "Grasshopper" for this purpose. The machine is not very expensive and would more than pay for itself in a single season.

The general cultural directions for the handling of deciduous fruit trees in the introductory chapters should be closely followed in the case of the peach tree. Nothing will bring a peach tree to a premature end quicker than not to prune. The trees as they stand in nursery rows have the limbs removed to a point about 12 inches from the ground. Instead of removing all these limbs when topping the tree at 20 inches, they should be cut back to about two inches long, so in case the buds on the main body do not start in the spring the buds on the smaller branches will. If the buds do start on the main body, the branchlets may be clipped off with a shear.

PRUNING

All growers are practically in one accord that peach trees must be pruned. How to do it, brings up an endless amount of argument. They say, "A confession is good for the soul." I am not going to argue this pro or con, except to say that I am now firmly of the opinion that the ideas that I have had for a number of years relative to the pruning of the peach, while they may not be absolutely wrong, do not bring the trees into bearing as early and as prolifically as it should. There is no argument about heading the trees to twenty inches after setting and resorting to very severe pruning the first year, cutting off at least one-half, or better still two-thirds of the current season's growth. Not more than four branches should be used to make the head of the tree, and they should be distributed to secure as symmetrical a tree as possible. Heretofore my recommendation to prune back severely in the second and

third years has resulted in developing an immense amount of woody growth, producing a fine umbrageous head, which was a sight to behold in the summer months, and which to all appearance, judging from the general healthfulness of the tree, was the right policy to follow. Careful observations have now convinced me that this severe pruning has promoted the woody growth of the tree to such an extent that it has militated against its fruitfulness. Instead of cutting the framework branches back so severely in the second and third years they should not be cut back more than one-third and the laterals distributed along their entire length at intervals of six to eight inches apart, should be shortened in of course, but not cut off. By following this plan a crop of peaches which will pay for cultivation may be harvested the third year, without in any way impairing the vitality of the tree.

In the fourth year and in subsequent seasons the method of pruning will be self-evident to the experienced pruner and requires no further elucidation here. This is the very idea which I hoped to bring about by the old method, but it was invariably frustrated by the exuberance of growth of the tree, the fruitful laterals being smothered out.

THINNING

To obtain large, firm fruit, thinning should be done when the fruit has set well and before the kernel has hardened.

Most growers become frightened when they find the ground under a tree literally covered with fruit and get cold feet. Forget your imaginary troubles and keep at it until your peaches are not closer than four inches apart, and try to have most of them six inches from each other, and then your crop will be heavier, no doubt than your tree will carry, without having a prop to support the overburdened branches. Less pits and more pounds of actual, fine, large, luscious, perfect peachy peaches should be the purpose for which every grower should strive.



A One-Year-Old Nursery Grown Peach Tree and the Same Topped and Root Pruned for Planting.

One-Year-Old Peach Tree Demonstrating New Idea in Pruning.

Peaches—Prices and Varieties

FREESTONE VARIETIES

	EACH	10	100
1 year 4 to 6 ft.	\$0 70	\$6 00	\$50 00
1 year 3 to 4 ft.	60	5 00	45 00
1 year 2 to 3 ft.	50	4 00	35 00

Except Special Varieties

***Admiral Dewey.** Large and handsome; the first early yellow-fleshed variety to ripen; a good market sort. Middle June.

***Alexander.** Large; greenish white, shaded deep maroon; juicy, sweet; a standard shipping sort. Early June.

Bilieu's Late. Large; white with blush cheek; flesh white; excellent late shipper. October.

Briggs Red May. Greenish white, with red cheek; flesh white. Recognized market variety. Middle of June.

Early Crawford. Very large, oblong; skin yellow, with fine red cheek; flesh yellow, very sweet and excellent. Middle of July.

***Early Imperial.** Identical with Yellow St. John. Deep yellow, with dark red cheek; flesh juicy and firm. Good for table and shipping. Last of June.

***Elberta.** Very showy and one of the best market and table varieties. Last of July.

***Foster.** Large; yellow, dark red cheek; fine for drying, market or canning. July.

Greensboro. Among the earliest and largest. Creamy white, with dainty blush; a wonderfully vigorous grower. May 1.

***Hale's Early.** Large; skin greenish, mottled red; flesh white, juicy, sweet. A standard among shipping varieties. Early July.

Late Crawford. Very large; yellow, with red cheek; flavor excellent; dries well. Early August.

***Lovell.** Leads all other clear yellow freestones; medium to large. One of the best drying and canning freestones. Dries even heavier than the Muir. First week in August.



Four-Year-Old Peach Tree Before (above) and After (below) Pruning. Note that It Carries Fruit Bearing Laterals From the Point that the Main Branches Diverge from the Body of the Tree to the Very Top.



***Mayflower.** One of the earliest peaches; red all over. For an early shipping peach probably best of all; brings good price and ships well. A favorite in southeastern states where it ripens about two weeks later than in California. Tree a strong grower, late bloomer and heavy bearer. May.

Morris White. Fruit medium size, skin greenish white, flesh white, firm, sub-acid and juicy. First of August.

•**Muir.** Very large; flesh clear yellow, very rich and sweet. The leading drying peach of California; good for canning. Last of July.

•**Salway.** Large; flesh deep yellow; rich and sweet. Good for canning and drying. Middle of September.

Sneed. Large, creamy white, with blush cheek; tender, juicy; valuable for early shipping. Middle of May.

Strawberry. Medium white, marbled dark red; flesh white, juicy, with rich flavor; good table sort. Early July.

•**Susquehanna.** Large; yellow, nearly covered with red; flesh yellow, sweet, juicy. August.

Triumph. Identical with Admiral Dewey. Skin yellow, blushed on sunny side; flesh yellow, juicy and sweet. Middle of June.

•**Wheatland.** Very large; yellow, shaded red; flesh yellow; firm, melting, juicy. August.

Yellow St. John. Identical with Early Imperial. Favorite early variety. Medium size, yellow with red cheek. Late June.

PEACH

CLINGSTONE VARIETIES

	EACH	10	100
1 year 4 to 6 ft.	\$0 70	\$6 50	\$60 00
1 year 3 to 4 ft.	60	5 50	50 00
1 year 2 to 3 ft.	50	4 50	40 00

Blood Cling. Medium; clouded purplish red; flesh deep red. July.

George's Late Cling. Large; yellowish white, splashed with red; flesh firm. Ships well. September.

•**Heath Cling.** Very large; creamy white, with faint blush; flesh white; highly flavored and one of the best for canning. September.

Lemon Cling. Large, round, skin white with light red cheek; flesh tender, sweet and juicy. A favorite for home preserving. August.

Levy's Late or Henrietta Cling. Deep yellow, shaded brownish red; of the largest size and one of the best for canning for home use. October.

•**Libbee Cling.** The skin is highly colored and the flesh of a deep yellow tinge. The fruit is very large. The tree is of an exceptionally robust habit and a very heavy producer. Last of July.

•**McDevitt's Cling.** Large; golden yellow; flesh superior flavor. In demand by canners. August.

•**McKevitt's Cling.** Creamy white, with delicate blush; flesh firm, rich and sugary; as a canning peach it has few superiors. Late August.

Peak Cling. Originating near Selma, California. Ripens between the Tuscan Cling and Phillips Cling. The fruit is medium size; skin yellow, blushed with red. Flesh yellow to the pit. Makes a fine canned fruit. August.

✓•**Phillip's Cling.** Large; yellow; flesh firm, clear yellow. Always commands the highest market price for canning. Late August.

ROEDING CLING

In color decidedly yellow with a very pronounced red cheek. The pit is small, flesh golden yellow and as to flavor there are few clings that will compare with it. The very fact that it has no red at the pit, that the peaches are all harvested before the Phillips Cling begin to ripen fully establishes its value as a high-class canning Peach. August.

•**Bunyon's Orange Cling.** Very large; yellow, with a dark crimson cheek. Early August.

Sellers' Orange Cling. Very large; rich golden. Middle of August.

•**Sims Cling.** An improved Phillip's Cling. Large to very large; golden yellow, with faint blush; flesh deep yellow, of fine texture, firm and rich; pit small. We regard it as the best clingstone for canning and recommend extensive planting. Ripens middle of August.

SELMA CLING PEACH

The New Mid-Season Canning Peach

In the past few years many new peaches have been introduced. Some of these have had merit, others have not. Professor E. J. Wickson states "We need two good Clingstones to ripen between Tuscan and Phillips and as good as they are." We are introducing a new yellow cling peach that will fill the gap Professor Wickson mentioned.

HISTORY.—About forty years ago a small lot of peach trees were planted on the Levis ranch a few miles east of Selma. These trees were budded to the leading varieties of that time. As usual some of the buds did not grow, but as peach trees were scarce and there was a brisk demand for peaches, many of these seedlings which were in the nursery rows were planted. As is always the case many of the seedlings proved worthless, but one at least bore a very fine yellow Clingstone peach and from this tree buds were taken and some trees in the nursery were budded of this particular new variety. It seems that the variety was not named but the trees were sold and found thereafter in the orchards of Tuscan, Phillips, etc., and in this way were distributed over the adjacent country. This resulted in this new variety being found among other varieties and as the peach proved to be a very fine canning variety, other trees were propagated and usually named after the man owning the ranch where the tree was bearing. We have watched the performance of this variety in a number of orchards for several years, have annually tested the fruit from a number of the tree-making tests as to time of picking, condition of fruit, various picking dates, and in addition have made a number of canning experiments.

DESCRIPTION.—The peach is a beautiful golden yellow, very uniform in size. Somewhat flattened; skin slightly colored when exposed to sun; flesh a clear yellow to the pit; is fine grained and of excellent flavor; the pit is very small. The syrup is left clear, there being no rag of the flesh at all in canning.

•**Tuscan Cling (Tuskena; Yellow Tuscan).** Very large; yellow. The best early canning peach; takes the lead over all other peaches in price. Middle of July.

New Peaches

	EACH	10	100
1 year 4 to 6 ft.	\$0 80	\$7 00	\$60 00
1 year 3 to 4 ft.	70	6 00	50 00

•**J. H. Hale.** A valuable new table, shipping and drying peach. Smooth skin, almost fuzzless. Very firm. Ships almost like an apple. Yellow freestone; flesh tender, excellent quality. Larger than the Elberta and ripening about the same period. From a California standpoint not in the class of canning peaches because it is red at pit and rags in the syrup. Middle of July.

Peregrine. Another of our introductions from Europe. The tree is a strong grower and a heavy producer of large, handsome crimson colored fruits. Flesh is yellow, firm and excellent flavor. July.

Oklahoma Beauty. Extremely large; nearly round, with high color. Among the finest in quality. Specimens measure 8 inches in circumference. May.

Oklahoma Queen. "Queen of Peaches." Larger than Greensboro in size, and in quality one of the finest early peaches grown. Wonderfully productive. Middle of May.

✓**Opulent.** Originated by Luther Burbank. Medium to large, almost globular; creamy white, with crimson dots and blush; flesh firm, very juicy. Early July.

THE NECTARINE

There is a mistaken idea that the nectarine is a cross between the peach and something else, while it is really nothing more nor less than a smooth-skinned peach. There is no question whatsoever about the nectarine adapting itself as fully to California conditions equally as well as the peach. The trees bear fully as well as the peach and for canning, drying and shipping, it has so many points in its favor it is difficult indeed to comprehend why planters have not engaged in nectarine culture more extensively than they have. In England the nectarine can only be grown under glass and the price realized for this, the most highly prized of all stone fruits, is beyond belief. As the nectarine has identically the same habit as the peach, the cultural directions are the same; therefore, any additional instructions given would be superfluous.



Stanwick Nectarine

NECTARINES—Continued

On Peach Roots:	EACH	10	100
1 year 4 to 6 ft.	\$0 70	\$6 00	\$50 00
1 year 3 to 4 ft.	60	5 00	40 00
1 year 2 to 3 ft.	50	4 00	30 00

Except Gower as noted.

***Advance.** Large; green, blotched with red; flesh greenish white. Early July.

Boston. Large, oval; bright yellow, with deep red cheek; flesh yellow, with a pleasant sub-acid flavor; tree a fair bearer. Late July.

Early Rivers. A valuable variety, ripening in July. The fruit is very large, skin brilliant crimson on light yellow background. Flesh greenish white and of rich flavor. Tree a strong grower and heavy bearer.

Hardwick. Very large, pale green with red cheek. Highly flavored; freestone. A splendid bearer. August.

Humboldt. Very large; bright orange-yellow, streaked crimson; flesh orange. Tender, juicy, highly flavored. One of the best. August.

New White. Large; greenish-white, with slight tinge of red; flesh juicy, with rich flavor. Early July.

***Stanwick.** Very large; skin pale, shaded rich violet; flesh white, tender, juicy. The best drying, shipping and canning sort. August.

***Victoria.** Tree a strong grower and heavy bearer. Medium, roundish, oval, greenish yellow, crimson on sunny side. Rich in sugar. August.

GOWER NECTARINE

Earliest of all red Nectarines and ripens same time as the Early Crawford Peach. The fruit is very firm which makes it valuable for shipping. Tree a strong, thrifty grower, heavy bearer. Fruit medium to large, freestone and having a delicious flavor. It is one of the best for shipping and drying.

	EACH	10	100
1 year 4 to 6 ft.	\$1 00	\$7 50	\$60 00
1 year 3 to 4 ft.	75	6 00	50 00
1 year 2 to 3 ft.	60	5 00	40 00

THE QUINCE

A standard fruit which has held its own without material modification for upwards of a hundred years. It likes a deep and loamy, moist soil. Its distribution is quite general, doing well along the Coast and in the interior, where there is sufficient moisture, or irrigation is practicable. Though not of equal importance with the peach and apple, nevertheless a few trees should find a place in every family orchard.

On account of its wide adaptability in California, quinces are deserving of much more attention than they have been receiving. The trees are tremendous bearers. For jelly-making they are superior, according to our views to any other fruit. Such varieties as Pineapple and Smyrna make a most palatable dish when cooked. There is a growing demand for them in the East, and although it is a matter not generally known, carload shipments of quinces are not at all uncommon.

On Quince roots:	EACH	10	100
1 year 4 to 6 ft.	\$0 75	\$6 00	\$50 00
1 year 3 to 4 ft.	60	5 00	45 00

Apple or Orange. Large; fine golden color; valuable for preserves or flavoring. September.

Champion. Large, bright yellow, ripening two weeks later than Orange. September.

***Pineapple.** Flavor is suggestive of the pineapple. Makes a superior jelly and will cook tender in five minutes. September.

***Rea's Mammoth.** Large, bright yellow; a strong grower and very productive. October.

***Smyrna.** Introduced by us from Smyrna. Very large and of a lively lemon-yellow; when cooked it is very tender, with a pronounced Quince taste and odor. October.

The Nut Trees

The irresistible desire of people in every walk of life to join the brigade and grow something in the fruit line is quite the thing as far as nut culture is concerned in California. Today the walnut and the almond predominate, but who will deny that the Chestnut, Filbert and Pecan will not all be factors to be reckoned with before many years go by? We know positively from observation in Europe that all of these nuts have a future before them, and the progressive nurseryman who is farsighted enough to realize all this is cataloging all these nuts, introducing the leading varieties from Europe and educating our people to the possibilities of their culture.

Twenty-five years ago California produced 150 tons of almonds, the average annual output now is 3000 tons; in walnuts, 400 tons, as compared with 12,000 tons now. Our imports of almonds are close to 9000 tons, and 18,000 tons of walnuts. These figures appear to be all out of reason, but they are quite true just the same. Figures don't lie, and the people of these United States want more of our nuts and will buy them in preference to the imported article, as our production meets the requirements of quality. The old story that this or that fruit will not do in California has been worn threadbare, and although we cannot grow everything where climatic and soil conditions are against us, every variety of fruit grown in Europe and Northern Asia will adapt itself to California conditions. We must not be overburdened with the thought to let well enough alone, but must be striving to improve the varieties of nuts already grown and aim to increase our scope of operations until we stand supreme as the nut center of the world.

THE ALMOND

Almond trees are budded on almond and peach roots. Never on apricot root. The almond root should be planted on sandy, gravelly soils where there is an absence of moisture during the late summer months. The peach root should always be given the preference on loamy, compact soils, which are retentive of moisture.

There are many sections in the great interior valleys and in many of the coast counties, noticeably San Luis Obispo, 30 miles inland, where almonds are an assured success. Thousands of acres have been planted in recent years. The very fact that the rainfall is ample, combined with the necessary elevation, overcoming the danger of injury to either the blossoms or nuts when in their formation stage, has had much to do with the extensive acreage planted to almonds. A well-drained warm soil and a locality where there is not too frequent an occurrence of frost in the spring are the necessary requisites to make almond culture a success.

STOCKS

The Almond and Peach roots are used exclusively for the growing of almonds. There is a preference for the almond root, because it sends its roots down deeper into the ground and the consensus of opinion is that trees are not only stronger growers but live longer on the almond than on the peach. The almond is really a very long lived tree and whether on peach or almond, providing the soil conditions were right, I have never observed any great difference in the longevity of the trees on either root.

CLASSIFICATION

The sweet almonds are divided into the following grades: The hard shell variety has no commercial value except for raising stocks for budding and grafting other varieties. These have 6 ounces or less of kernel to the pound of nuts. There is one exception, viz., the famous "Jordan," which is a hard shell with its fixed type of elongated kernel and a flavor superior to all other almonds. Cross pollination is one of the interesting phases in connection with almond culture, and although no exhaustive experiments have been made to determine how far reaching this is, alternating three to six rows of a variety has a very marked effect in improving the yield.

All of our almonds are one year buds. Long years of experience have demonstrated that the yearling tree grown under our favorable conditions is fully equal to two and three year old trees grown elsewhere.

PRUNING

When planting almond trees the instructions relative to other trees as given in the introduction should be followed. The trees after being set should be headed to 20 inches from the ground. During the first year allow the numerous shoots to grow without any interference and in the early winter months thin out the laterals so that the lowest ones will not be closer than ten inches from the ground, not leaving more than four to form the head of the tree. Even if they have made a growth of from three to four feet, cut them back severely. Because almonds should not be pruned much in later years, do not hesitate to prune when they require your trained eye and hand to shape them properly, and create a form and a head which can only be secured by severe cutting. If there is any one object I have in view, it is to impress the man who aspires to be a fruit grower to remember that his success for at least the first eight years of his undertaking is dependent absolutely on a few essentials, and the pruning of his

trees is one of the most important for at least the first four years of their existence.

The second and third winters cut off at least from one-third to one-half of their growth. The fourth winter, the tree now having become sturdy and assumed the goblet form which is ideal, confine your pruning to the thinning out of objectionable branches, and remove laterals where there is a tendency to overcrowding, to permit light and air to circulate through the trees.

Almonds—Prices and Varieties

On Almond and Peach roots:

	EACH	10	100	1000
1 year 4 to 6 ft.	\$0 70	\$5 00	\$40 00	\$350 00
1 year 3 to 4 ft.	60	4 50	35 00	300 00
1 year 2 to 3 ft.	50	4 00	30 00	250 00

Drake's Seedling. Tree a strong grower and heavy bearer. Like the Texas Prolific it is valued for fertilizing other varieties of almonds. Nut medium size, kernel short, plump and sweet. Soft shell.

Eureka (New). Blooms with Nonpareil, usually in full bloom March 1. Nuts mature September 1. The Eureka on account of the similarity of the kernel in shape and flavor to the famous Jordan, commands the very highest price, and confectioners pay a premium to secure it. It differs in two essentials from the Jordan, being somewhat smaller in size and is a paper-shell.

I. X. L. Sturdy, upright grower; nut large; soft shell; bears heavily and regularly. Usually single kernels, but perfect, hulls easily, no machine needed; bleaching unnecessary in many districts. Highly recommended by all orchardists.

Jordan (Palatine). The famous Spanish variety so long sought after by nut-growers. Nuts are long, with hard shells; the kernels are superior in flavor, long and plump and filling the entire cavity. A strong grower and heavy bearer.

Lanquedoc. Nut is large, shell thin and the kernel is very sweet. In some localities it is not a regular bearer, while in others it produces large and regular crops of nuts.

Ne Plus Ultra. Large and very long; soft shell, producing clusters all over limbs. Almost always single kernel; fine flavor, hulls readily. A rapid grower and regular, heavy bearer.

Nonpareil. Considered by all almond growers to be the best variety of the paper shell type. The nut is large, long and narrow; kernel of excellent quality. Tree is a strong grower inclining to weep which makes it a handsome, as well as profitable tree to plant.

Peerless. Preferred by some to I. X. L., which it resembles, but the nut is larger. Shell medium soft, white. Kernel short, few doubles. Grown quite largely in Sacramento Valley where it is considered a very profitable nut.

Texas Prolific. Closely resembles Drake's Seedling. Kernel very plump and of medium size, well filled, shell soft, hulls very easily. Never fails to produce a good crop. Valuable to plant with other varieties for pollination. Most vigorous grower of all Almonds. As a regular and sure cropper has no equal.

TOREAMS ALMOND

Mr. T. O Reams discovered this valuable variety growing in his 40-year-old orchard near Suisun. It is a valuable acquisition in that it is a late bloomer and a heavy regular producer.

The nuts are above average in size; rich in flavor; kernels much larger than I. X. L.; hulls very freely.

After observing it for some years to determine its merits, we are confident of its value, particularly for planting in sections where occasional late frosts occur.

This season we have propagated it and are offering a limited number of the trees.

THE BUTTERNUT

(Juglans cinerea)

A native of the middle west states and found most abundantly and reaching its highest development in the Ohio River Basin. The tree seems to adapt itself to California conditions, particularly in the interior valleys, in river bottom locations where the soil is always damp and admits of the ready penetration of the roots. Trees rarely come into bearing before eight years. The nuts are of the highest flavor and second only to the Pecan. They are pronounced hardshells, conical in form, pointed at the apex with a rough and a very much furrowed exterior.

	EACH	10
4 to 6 ft.	\$0 75	\$6 00

THE CHESTNUT



Large Chestnut Tree Growing near Concord, Contra Costa County. A Beautiful Ornamental Tree Bearing Nuts of Finest Quality.

Chestnuts thrive fully as well on a heavy, clayey soil as they do on a sandy loam, providing it is retentive of moisture and is deep enough to allow the roots to penetrate without hindrance. In the interior valleys they should be planted in river bottoms, or they may be planted on the plains, providing the soil conditions are satisfactory, either sub-irrigated or the moisture being supplied by surface irrigation. As a rule all failures to successfully grow them in the interior can be traced to the sunburn of the exposed high pruned body of the tree. Low heading is therefore one of the important points in connection with their successful culture in the interior. As the trees do not bloom until all likelihood of frost has passed there is no danger of injury from this source, and bounteous crops are harvested from them annually. Preference should always be given to the grafted trees by the orchardist; such trees will commence to bear within three years after planting. The nuts are of a uniform size and quality and the increased cost of the grafted trees over the seedling will be more than repaid with the first year's crop. Beyond its economic value for its nuts, the tree possesses advantages for avenue planting, and makes a very striking ornamental tree with its dark, glossy green leaves, when planted singly. Where solitary trees fail to bear, it usually arises from the fact that the staminate and pistillate blossoms do not mature at the same time. Trees should be planted from 40 to 50 feet apart. After the head of the chestnut tree has once been formed, only a little pruning, except to remove interfering branches, will be necessary. The grafted varieties come into bearing when four years old and produce nuts of superior quality. The trees have more distinctive character. For fruit and ornamental purposes they have few equals.

Grafted Varieties		EACH
2 to 3 ft.....		\$1 25
Claford (Italian). Good bearer, and produces from two to four nuts in each burr.		
Marron Combale-french. Nut large, sweet and highly flavored; foliage glossy.		
Marron de Lyon. Introduced from France. Nut large and having a rich and sweet flavor.		
Numbo. A seedling of the Italian Chestnut. A regular and prolific bearer. Nuts large and sweet.		
Ridgely. Nut medium in size, quality good. Tree vigorous and productive.		

THE PISTACHIO

Promises to assume commercial importance. This is the Pistachio Nut of Commerce, sometimes called green almond. Very extensively used for coloring and flavoring confectionery and Ice Cream. The tree is dioecious, that is the male and female flowers are on different trees and must be planted together. Order one male tree with each female tree.

Male and Female Trees	EACH	10
4 to 6 ft.....	\$2 50	\$20 00
3 to 4 ft.....	2 00	15 00

THE PECAN

Of the eight or nine species of hickories the one which produces the most marketable fruit and in the most profitable quantities is the Pecan. A native of the Southern States, it is today the only nut grown there and to a limited extent in the Middle States, which has any commercial importance. Texas is probably the largest producer of pecans, the crop aggregating several millions of pounds and gathered largely from seedling trees. The business of cracking pecans and selling the meats put up in attractive packages has created a demand for the nuts which is increasing at a very rapid rate. It is largely due to the impetus the industry has received in recent years that has encouraged the planting of trees on a commercial scale of the improved papershell types. The difficulty of extracting the meat from the hard shell seedling nuts has been one of the causes for their not being more popular as a dessert fruit. The thin shells of the improved types, the ease with which the meats are removed, and the noticeable absence of the fibrous segments found in the hard shell nuts, which possess a peculiar acrid taste, will do much to make it popular. Old seedling Pecan trees are found growing and producing heavy crops annually in the Sacramento and San Joaquin Valleys. A number of seedling trees, two feet and over in diameter, are growing one mile north of Fresno bearing abundant crops. It is only within the last ten years that pecans have been regarded of sufficient commercial importance to cause groves to be planted in the Middle and Southern States, and the condition of affairs has been brought about by the unexcelled merit of the Papershell Pecan. In California only a very few Papershells are to be found; none of these are over fifteen years old, with the most complete assortment of varieties on the Roeding Place.

CONDITIONS FAVORING ITS GROWTH

The trees thrive in a great variety of soils, doing well in a stiff clay or porous sand, and in Texas they are said to do well on soils underlaid with hardpan, provided proper precautions are taken to blast it before planting. The planting of trees should be confined to soils where moisture is either supplied by natural means or irrigation. Pecans will prove a valuable acquisition to our list of nut fruits in the warm interior valleys of California, Oregon and Washington. In the coast counties, although the tree grows well, it does not mature its nuts, due to the cool, foggy weather, which does not seem conducive to the proper development of the fruit before the dormant season sets in.

For planting along irrigation ditches, the Pecan is the ideal tree as the tree will thrive without cultivation and ripens its nuts after the water is turned out of the ditches.

The advisability of planting only named varieties of grafted or budded trees is conceded by experienced planters. When trees are grown from selected Papershell seeds, they are liable to produce nuts of variable character in shape, size, thickness of shell and quality of meat. The additional cost of growing named varieties either by budding or grafting is caused by the very small percentage which a nurseryman succeeds in growing. If the orchardist will only bear in mind that the increased outlay for budded or grafted trees is offset by the fact that they will come into bearing in less than half the time that seedlings do, and that the nuts will sell for four times as much on the market, their economy is at once obvious.

The Pecan, like the walnut, is unisexual; that is, the male and female organs are not in the same blossom. It sometimes happens that the male blooms (catkins) mature and release their pollen grains before the pistillate or female bloom is in the receptive stage and when this occurs the nuts are hollow shells and it is therefore advisable in planting a pecan grove to plant two or three varieties and alternate with several rows of each. Trees should be planted not closer than 40 feet and on rich bottom soils 50 feet is better. It is entirely practicable to plant some other fruit between temporarily until the Pecan commences to bear profitable crops, when the other trees can be dug up. The oft repeated remark that only trees which have never had their tap root cut will bear, has time and again been shown to be a fallacy; in fact, no harm will result from the shortening in of the tap root, for the tree is really benefited by the more spreading root system. The difficulty of securing a uniform stand and protecting the trees from injury; the marked variation in the size of the trees when the nuts are planted in the orchard where the trees are to grow, has further discouraged this method of procedure. Remarks pertaining to the pruning of Walnut trees are applicable to the pecan.



The Stuart Pecan—A Recognized Standard Variety—Bears Abundant Crop of Well Filled Kernels

GRAFTED VARIETIES

	EACH	10	100
6 to 8 ft.	\$2 50	\$20 00	\$175 00
4 to 6 ft.	2 00	17 50	150 00

Pabst. Another valuable addition to the list of improved Pecans. Nut cylindrical, moderately large, soft-shell, parting well from meat; kernel particularly well filled, bright and of excellent quality.

Schley. This variety is becoming recognized in the southern states as one giving considerable promise and although its adaptability to California conditions has not been tested to any extent, we have every reason to believe it will find conditions here equally as congenial for its best development.

Tree bears heavily; the nuts are medium; shell is thin; kernel full and plump and invariably fills well. Nuts are said to sell for higher figures than any other variety in the eastern markets.

***Stuart.** Introduced by the late W. R. Stuart, Ocean Springs, Miss. A standard for commercial orchards. Has all the points for a profitable pecan; large size, desirable in shape and fine in appearance; always well filled, meat of good flavor.

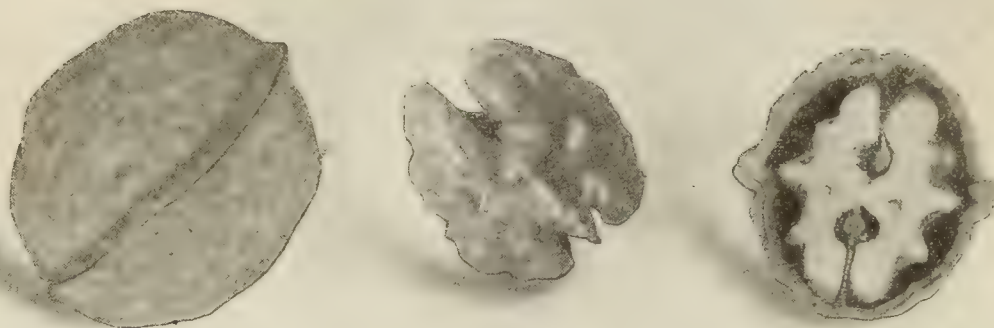
Success. A grand nut of recent introduction; is of the largest size, cylindrical and tapering at the apex; shell very thin and parting freely from the kernel, which is full, plump and of the best quality. Tree vigorous and thrifty and a regular and abundant cropper.

***Van Deman.** Large and oblong in shape, running 45 to the pound; shell moderately thin, cracks well and yields plump meats of good quality.

Pecan Seedlings

	EACH	10
3 to 4 ft.	\$1 00	\$7 50

THE WALNUT



Placentia Perfection Walnut

This tree prefers a rather loamy, deep, rich soil, and no nut yields larger and more profitable returns; the tree is practically free from insect pests, and when once established requires little care as far as pruning is concerned. Good and thorough cultivation is necessary for activity in the growth of the tree, causing it to respond with bountiful crops.

HOW TO PLANT

For commercial planting, trees are usually set 40 feet each way, although in some instances where the soil is exceptionally fertile, trees are set 50 feet apart, for as the tree matures it makes a wide spreading top, so that it is no uncommon sight to see branches even at the latter distance interlacing.

All the talk that the cutting of the tap root of the walnut interferes with its bearing qualities is mere twaddle. Practically all the orchards in California are transplanted trees.

PRUNING

Even if trees are ten feet high, they should be cut back to 3½ feet from the ground after being set. In the interior valleys growers have even found it expedient at times to cut trees down to 12 inches and train up a new stem. If there are any advantages in this plan of procedure, they are evidenced by the tremendous vigor and the prevention of sunburn of the new shoot, which must of course be staked the first year. The coined expressions that this tree or that should not be pruned because it would be ruined, has had the tentacles of misapprehension more closely interwoven around the walnut than possibly any other tree. Which is preferable, the tree with all its fruit bearing wood in the very top or the one that is liberally supplied with laterals as nearly as it can be obtained from the point from which the head is started? If you can secure a more striking tree with a broad bearing surface, is it not common sense to suppose that you are not going to reach the goal you are aiming at, if you don't do something to check the growth of the framework branches?

No person of intelligence will deny the fact that one's arm held at length has not the strength to resist the same strain as when the forearm is held at right angles to the arm. The same principle applies to the main limbs of the tree. The development of elbows promotes strength, increased bearing surface and a perfect tree. Cutting back the framework branches one-half the first winter after planting; pruning the laterals in the same manner the second winter and thinning out when there is a tendency to overcrowding, followed by a more moderate treatment in the third winter, and the checking of rampant growing limbs in the fourth season when they have a tendency to outstrip their neighbors, and following out this last recommendation in subsequent years, are requisites easily carried out to make a perfect tree.

SPECIAL FEATURES

The holes for planting should not be less than three feet deep and two feet in diameter. Cut the tap root off at about twenty-four inches and trim off all bruised and broken lateral roots before planting. A liberal application of thick whitewash, in which some salt or blue has been dissolved, is very beneficial to the body of the tree, as it prevents sunburn.

The Walnut, like the Pecan, is unisexual; that is, the flowers of both sexes although produced on the same tree, do not occur in the same flower. The male flowers are called catkins and in the spring are distributed throughout the tree and look like tassels; the female flowers are like two little horns at the terminal ends of the new growth.

One of the striking peculiarities of the French type of walnuts is their late blooming. This peculiar feature of these walnuts was no doubt developed in Grenoble, France, where the Chaberte, Franquette, Mayette and Parisienne originated, to overcome the nipping of the blossoms by late frosts in the spring. When the French walnuts are planted among such varieties as Santa Barbara, Placentia Perfection and others, the difference is very striking, for they rarely have a bud swelled by the middle of April, while the California varieties will be clothed with all their foliage.

Deep alluvial soils should always be selected for planting walnuts, and a liberal supply of water should be available, either by surface irrigation, or the soil in which the trees are planted should be of a moist nature.

It is only recently that the San Joaquin and Sacramento Valleys have been found to possess climatic and soil conditions making the culture of the walnut a very profitable undertaking, particularly of the French varieties grafted on California Black Walnut root.

Walnuts—Prices and Varieties

Except Willson Wonder

Grafted on Calif. Black:	EACH	10	100
8 to 10 ft.....	\$2 50	\$22 50	\$200 00
6 to 8 ft.....	2 25	20 00	175 00
4 to 6 ft.....	2 00	17 50	150 00

Bijou. (Large-fruited.) Nut of immense size but the kernel is small and does not fill well. Commercially of no particular value.

Chaberte. A very valuable variety; nuts good size; kernel extra fine flavor; a good bearer. Considered one of the best nuts, particularly in the San Francisco Bay region. Blooms late in spring.

***Concord.** This popular variety originated from a seedling planted years ago by the father of Mr. George Westcott, in Walnut Creek, Contra Costa County, Cal. The fact that the tree has been a strong grower, enormous bearer, producing large, smooth, round nuts, well filled, has placed it in the front rank as the sort to plant by all Walnut growers in this district.

***Cut-leaved.** A most graceful ornamental tree, particularly adapted to gardens and lawns; foliage deeply cut and laciniated; nut large, elongated, smooth shell; kernel sweet and well filled; very best quality. Hardy where other soft shell walnuts are not; stands zero weather.

***Eureka.** Tree is remarkably vigorous, upright grower, leaves and blooms fully three weeks later than seedlings of the Santa Barbara Soft-Shell. It is therefore very desirable in localities subject to late frosts. An immense producer. Nuts large, elongated, smooth and tightly sealed.

***Franquette.** The standard among walnuts, and commanding a higher price in the market than any other. Mr. Roeding recognized the superiority of the famous Voorman Strain in the Franquette Walnut orchard owned by Mrs. Voorman at Santa Rosa, California, after making a number of special trips of investigation and we were the first to secure scions from this famous orchard and have kept this strain pure. Nut large, elongated, oval and very attractive in form; kernel full, sweet, with a very rich nutty flavor. Blooms late in spring.

✓ **Mayette.** This ranks with the Franquette as one of the leading commercial varieties. Size large, and unequalled as a dessert nut; an abundant bearer; starts late in the spring.

Parisienne. Large, excellent, starts late in the spring. Originated in the southeast of France and on account of its exceptional beauty named Parisienne in honor of the capital of France. The nut is large, broader at the small end than the Franquette and Mayette, and has a very pretty shape.

• **Placencia Perfection.** A vigorous grower; commences to bear abundantly about the fifth year after planting. An improved Santa Barbara Soft-Shell. Most popular walnut in Whittier district. Nut large; shell smooth and thin; kernel white and sweet.

SPECIAL WALNUT

✓ **Willson Wonder.** Originated by F. C. Willson and probably a seedling of the Bijou, to which it bears a very close resemblance as to size, which is exceptionally large. The shell is much smoother. The variety is noted for its precocity, even in the nursery row being loaded with nuts. Valuable for planting in the confines of the home grounds.

Prices for Willson Wonder.....EACH \$3 00

ENGLISH AND FRENCH VARIETIES OF WALNUT SEEDLINGS

Grown from selected second generation nuts. When seed is carefully selected, they will reproduce nuts equal in quality and thickness of shell to the parent tree, though there is more or less variation in the size of the nuts. Owing to the demand for such stock we are fortunate in having a fine stock of these trees to offer this season.

	EACH	10	100
6 to 8 ft.....	\$1 10	\$10 00	\$85 00
4 to 6 ft.....	90	8 00	70 00
3 to 3 ft.....	80	7 00	60 00

Chaberta
Cut Leaved
Franquette
Mayette
Mayette Rouge

Parisienne
Placencia Perfection
Praeparturiens
Santa Barbara Soft Shell
Vourey

Walnut Seedlings

	EACH	10
6 to 8 ft.....	75	6 00
4 to 6 ft.....	60	5 00



Franquette Walnut

American Black. Moderate grower, starting late in the spring. Nut is very hard, with corrugated exterior.

California Black. Rapid growing and desirable as a stock for grafting or budding; adapts itself to all conditions. Nut medium size; hard, smooth shell.

Walnut Trees for Timber

	EACH
4 to 6 ft.....	\$1 50
3 to 4 ft.....	1 25

✓ **Paradox.** It grows fully a third faster than the California Black, is very hardy and free from pests. Produces timber light in color and with fine, compact grain. In cold climates, winter protection should be given the trees for two or three years. Very rarely produces any quantity of nuts.

THE FIG

Figs grown in the United States either for eating fresh or for drying are of one species, viz: *Ficus carica*. There are an endless number of varieties of figs. In many instances on account of the wide distribution of this fruit throughout the world, the same variety may be blessed with any number of synonyms. This is the case with many sorts grown in California today. Not over six varieties comprise the list of commercial varieties for all purposes in California.

LOCALITIES FAVORABLE FOR THE FIG

It is safe to say that no deciduous tree grown in the semi-tropic and temperate zones will adapt itself to a wider range of climates and soils than the fig. Figs can be used for such a variety of purposes, namely: drying, canning, preserving, shipping in the fresh state and for home use, that a wide range is open for their successful exploitation. To produce the finest dried figs, with the thinnest skin and rich in sugar, a warm dry climate is an important factor. They will withstand a temperature of 18 degrees Fahrenheit in the winter months without being injured; hence their geographical distribution is very wide.

BRIEF HISTORY

Many of the countries whose shores are washed by the Mediterranean Sea are producers of figs commercially, but the recognized fig center of the world today is in the Mendere Valley, about forty miles distant from Smyrna, Asia Minor. It is here that the Smyrna Fig of commerce has been grown for centuries and the secret of their culture as so closely guarded. It was only after fourteen years of constant and persistent effort on my part that I succeeded in 1890 in producing the first Smyrna figs in the United States by artificial pollination, and ten years later, having succeeded in establishing the *Blastophaga grossorum*, with the assistance of the United States Department of Agriculture, the first Smyrna figs were produced in a commercial way.

The first figs introduced into the United States were brought, as nearly as can be determined, by the Spanish Padres from Mexico in 1769. They were planted at the San Diego Mission. This fig is still a standard in California. The tree is a great

grower and produces an abundance of what is known as the Breba or first crop, maturing in late June and July and the second crop ripening from August to October. The very fact that this and other varieties of figs were grown in California, from which abundant crops were being gathered annually, caused the whole subject of caprification to be branded as an idle dream. It is now conceded that the Smyrna type of figs are in a class by themselves, and unless the pollen is conveyed by the *Blastophaga* to the edible fig, all the figs drop off prematurely when about the size of marbles. I knew this to be a fact, for in my orchard of sixty acres of Smyrna figs, which I cared for over a period of fourteen years, all the figs dropped off until the *Blastophaga* was established in the Capri fig trees.

The fundamental difference between the Adriatic and Smyrna class of figs is that the former matures its figs without the fig wasp, while the latter does not. The Adriatic figs seem to possess all the qualities of the Smyrna so far as general appearances go, but on investigation it will be found that all the seeds are hollow, while in the Smyrnas each seed contains a kernel, giving the fig a nutty flavor and a delicious syrupy sweetness found in no other fig. The great interior valley of California, with its favorable climatic conditions (there being no rain in the summer months, and the air being both warm and dry) present possibilities which are not equalled in any other part of the world. The output of Smyrna is in the neighborhood of 30,000 tons annually. California produces about 10,000 tons of dried White Adriatic, Mission and Calimyrna. The United States imports from 10,000 to 13,000 tons annually. The demand for figs for shipping, preserving and drying is growing by leaps and bounds, and it is up to the growers to embrace their opportunities and engage in this, one of California's most promising industries.

CAPRIFICATION

To give even a short review of caprification would occupy pages of a book several times as large as this one. I merely wish to say that for years the subject was regarded as an illusion by prominent horticulturists, and I was subjected to criticism, and met with discouragements too innumerable to

mention, before I finally, after many years of persistent effort, succeeded in convincing the skeptics that Smyrna figs could not be grown without caprifigation. Plant life has just as many intricate problems as human existence. We have in the fig a problem which is beyond human ken. It is very difficult indeed to give any explanation why the edible fig "Ficus carica" has within its range so many hundred varieties of figs which do not require fertilization of their flowers to produce edible fruit, while in the Smyrna type of figs unless the flowers are pollinated the figs drop off and never mature. The fig is a fleshy receptacle to which is attached thousands of minute flowers. Botanically, flowers grouped together like this are characterized as an inflorescence. The fig differs from practically all other classes of plants in that no ordinary insect can reach its flowers, because the receptacle in which they are enclosed has only one small opening in the apex of the fig to which to all appearances, as far as human intelligence and eyesight can discern, it would be impossible for any insect to enter. Fortunately for the thousands of people who enjoy eating figs, a great many varieties mature their fruits and are perfect from the standpoint of the consumer, although scientifically imperfect, because the seeds are hollow, the flowers not being fertilized.

When California, twenty years ago, began to engage in the business of drying figs and shipping them to the East, it did not take long to discover that there was something decidedly lacking in our product when compared with the famous fig of commerce from Smyrna. The very decided difference in quality was attributed to soil and climatic conditions and those who were ready to concede that a little wasp could so completely change the character of a fruit were in the abject minority. Although it is not necessary to have the fig wasp for the White Adriatic, nevertheless there is a decided improvement in this and even in other varieties of figs where the wasp has made its entry.

One point must not be overlooked, that the edible fig grows on an entirely distinct tree from the Capri fig. The Capri fig serves as a home for the several generations of the wasp and its figs are not edible. The Capri fig produces three distinct crops annually, the first one pushing out on the wood of the previous year's growth in March; the second crop comes on the new wood in July; the third in September. These several crops are designated as follows: Profichi or spring crop; Mammoni or summer crop; Mamme or overwintering crop. The Mamme figs remain on the trees all winter, from September until into April of the following year, the wasps during this period being in the larvae stage. When the Capri fig starts to grow in the spring the wasps pass out of the larvae into the pupae stage, and finally when the Profichi figs are about the size of marbles, which usually occurs in April, the female wasp passes from the Mamme figs and forces her way through the scale of the orifice into the Profichi figs (which to the naked eye is closed) and deposits an egg in the ovaries of the gall flowers. The life history of the wasp in this crop is the same as in the others, the only difference being that the metamorphosis takes place more rapidly. When the crops reach maturity there are both males and females. The males are wingless and are readily distinguished by their reddish tinge; the females are of a lustrous black color and are winged. The male wasp crawls out of

the gall, first, intuitively locates the female in the gall in which she is confined, gnaws an opening with its powerful mandibles and impregnates her. She then enlarges the opening made by the male and starts on a tour of exploration. Her sole object in life is to perpetuate her species and to do this she must find the flower of another fig to deposit her eggs. As the Profichi crop bears the most important part, in her relation to mankind, for the sake of argument we will take it for granted that the female wasp is coming out of the Profichi crop. As she prepares to take her departure she passes through the male or staminate flowers, surrounding the orifice of this crop and her body is completely dusted with the pollen grains. In the great fig-growing districts this flight occurs in the month of June. It is in this stage of her existence that the hand of man and nature interferes with her effort to propagate her progeny.

The Profichi figs are gathered from the trees and are distributed in oval baskets made of $\frac{3}{4}$ -inch poultry netting or placed in small strawberry or fruit baskets which have been previously hung on wire in the Smyrna Fig Trees. At this time the Smyrna figs vary in size from a small pea to a large size marble. The wasp forces its way between the scale of the orifice of the edible fig, going into it for the avowed purpose of laying its eggs.

Fortunately for the fig industry it is frustrated in its efforts to reach the ovaries of the female flowers with its ovipositor to deposit eggs. In its persistent and determined effort to find a receptacle for them it crawls around the inside of the fig and dusts the pollen on the pistillate organ of the female flowers. The insect is exceedingly small and it finally perishes within the fig, being absorbed by its juices or it crawls out and dies. One wasp is sufficient to pollinate the numerous flowerets on the inside of the fig, but it very often occurs that on breaking open a fig, three to four insects will be found crawling around. Within a couple of days after the wasp has penetrated the fig, its entire appearance changes; it becomes plump and firm and of a deep green color, while the figs on the same tree which the wasp has failed to reach turn a sickly yellow, shrivel up and drop off. Nature again asserts herself in behalf of man, by delaying the pushing out of the Mammoni crop of figs until the season for caprifigging the edible figs is practically over with. The Mammoni is the lightest of all the crops, and it is very difficult to find any figs of this crop in the Capri fig tree until July. There are just enough of the late Profichi figs on the tree at this time to supply wasps for the Mammoni crop.

Growers who fail to secure a good crop of figs on their Smyrna trees have only themselves to blame for not studying their problem, for a light crop is traceable to an indifference on the part of the grower in caprifigging. There are several varieties of Capri figs, some of which ripen their fruit early, while others are later. As the edible figs are not in the receptive stage at the same time this is a fortunate coincidence. In order to know how many Capri figs to place in a tree to secure the best results, multiply the age of the tree from its fourth to its ninth inclusive by five and from 10 years and up by 10 and you will not go very far wrong in placing enough figs in your trees to secure the very best results. From 3 to 10 figs should be placed in the trees every third day or even oftener than this, the frequency with which this is done being determined by the rapidity with which the Capri figs ripen.



A One-Year-Old Orchard Grown Fig Tree with the Framework Branches Arranged to Form the Head of the Tree and Cut Back to Develop Lateral Branches



Two-Year-Old Tree Cut Back with Framework Branches to Promote Vigorous Growth and Sturdiness. Note this Tree is Already Assuming a Shapely Head.



Third Season—A Three-Year-Old Tree Pruned. The Head of this Tree Now Being Fully Outlined, the Pruning in the Future Should be Confined to Removing Interfering Branches and the Cutting Back of Such Branches as Have a Tendency to Droop.

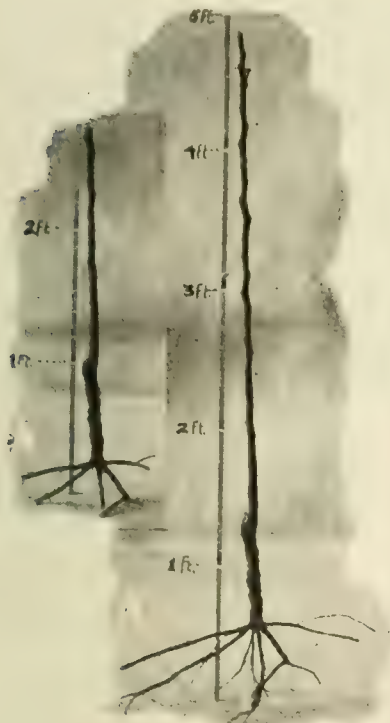
PLANTING AND PRUNING

The Capri fig makes a very desirable shade tree, and as there is no mess from the dropping fruit, growers will make no mistake in planting them around their homes. The additional protection from the buildings is a valuable asset in years when low temperatures may prevail during the winter months. The Mamme crop will withstand a temperature of 20° Fahrenheit without injury, but anything lower than this, particularly over a protracted period will freeze the figs on the outside branches. Capri figs should be planted 30 feet apart, for nearly all varieties are strong growers. They may be used to advantage as avenue or border trees. None of the edible types of figs, whether they be of the Adriatic or Smyrna class should be planted closer than 30 feet. On deep rich soils 35 feet is better. In Asia Minor orchards which have been planted within the last forty years are set in the square system and none of the trees are planted closer than 35 feet apart.

Although the fig will stand all kinds of neglect after it is established, too great emphasis cannot be laid on the close attention which must be given in transplanting the trees from the nursery to the orchard. The roots of a fig tree are very susceptible to exposure, hence they should be carefully covered in transferring from the trenches to the field. It is surprising what effect the puddling of the roots will have in preventing their drying out even in cases of severe winds, and we cannot emphasize the importance of this too strongly. To make a puddle, dig a hole eighteen inches deep, two feet in diameter, fill it partly full with heavy soil, mix with water until you have a muck the consistency of a heavy paint. Dip the roots into this, and give no further concern about their drying out even if exposed to the direct rays of the sun for a short period.

Before planting cut off all bruised and lacerated roots and make a fresh cut on all other roots, so they have a smooth, clean surface. The tree when planted should not stand over three inches deeper than it stood in the nursery row. Never neglect to settle the earth around the trees with not less than fifteen gallons of water. After the water has soaked away fill in with fine soil without tramping. No greater mistake can be made than to wait for rain or for water to be turned into the irrigating ditches. After the tree is planted, cut back to twenty-four inches from the ground, and cover the wound with rubber paint, or grafting wax.

The first winter cut the branches of the one-year trees back to about twelve inches, leaving not more than four to make the head of a tree. Have these distributed in such a manner that there will be sufficient room for them to expand without crowding as the tree grows older. The second season cut not less than two-thirds of the new growth, leaving not more than two shoots on each of the framework branches. Any branches on the under side of the limbs having a tendency to droop to the ground should be removed. The third season shorten in the new growth about half, leaving the same multiple of branches on each of the previous year's shoots as were left the year before. In after years the pruning is limited to the removal of branches which cross or interfere with each other and checking the growth of branches making an excessive growth. Young trees should always be protected with tree protectors to prevent sunburn.



One-Year Tree From Nursery (Left Hand) Cut Back For Planting.



An Eight-Year-Old Well Pruned Fig Tree. Notice the Immense Bearing Surface, Which is Only Obtained by a Systematic Method of Pruning. Without this Pruning the Tree Would Have a Few Branches Running Straight Up, and a Consequent Lack of Laterals, Thus Impairing Very Materially the Bearing Capabilities of the Tree.

CROP SURE—NO FAILURES

The certainty of the crop is indicated by the policy pursued by the packers of dried figs, who make it a practice to purchase the entire output of an orchard extending over a period of years at a fixed annual sum. The prices paid depend largely on the size of the trees, and range from \$1.00 to \$5.00 per tree. It is no unusual thing for these contracts to involve sums as high as \$5000.00 per annum. The contractors assume all the expense of harvesting, the grower merely prunes and cultivates his orchard under this arrangement. The very fact that our importations of Smyrna figs are constantly increasing, the annual amount averaging not far from 13,000 tons, is in itself sufficient indication of the possibilities of a great industry under the favorable conditions presented in many sections of our Pacific Coast States.

Talk about living, or rather luxuriating, under your own vine and fig tree beneath our balmy skies! If this is not a truism expressing the delight of going back to the soil in the glorious climate of California, what is?

THE CALIMYRNA FIG

Calimyrna is a coined name and is registered in the patent office of the United States. There are a number of varieties of Smyrna figs, but there is only one genuine fig of commerce and it is to it the name has been given in order to prevent any confusion.

Smyrna Class

	EACH	10	100	1000
4 to 5 ft.....	\$0 70	\$6 00	\$50 00	\$400 00
3 to 4 ft.....	60	5 00	40 00	350 00
2 to 3 ft.....	50	4 00	35 00	300 00

Bardajic. A magnificent table fig, with rich, deep purple pulp. August and September.

Calimyrna. The genuine Smyrna fig packed under the name of "Erbeyli" (signifying fine fig) in Asia Minor, and known in Turkish as "Lop," and in Greek as "Lopia." Large to very large; turbinate, pyriform; very short, stalk short; ribs distinct, orifice large, of pale ochre color and widely open when the fig is mature and before shriveling; skin lemon-yellow; pulp reddish-amber, sometimes pale amber, turning to dark amber just before falling; seeds large, yellow, fertile, overspread with a clear, white syrup, giving the fruit a richness and meatiness unsurpassed by any other fig. Tree of spreading habit, leaves medium to large and five lobed. The dried figs contain 64 per cent sugar, which is 1½ per cent more sugar than found in the imported Smyrna fig. Dries readily and with less trouble and expense than any other fig, dropping to the ground of its own accord, being practically dry when it falls and requiring when placed on trays, only from two to three days exposure to the sun. This is the world-famous fig of commerce. August to October.

Kassaba. Large; almost globular; skin pale green; pulp reddish pink. September.

Adriatic Class

This class of figs does not require pollination to mature its fruits. They will adapt themselves to a wider range of localities than the Smyrna types.

	EACH	10	100	1000
4 to 5 ft.....	\$0 70	\$6 00	\$50 00	\$400 00
3 to 4 ft.....	60	5 00	40 00	350 00
2 to 3 ft.....	50	4 00	35 00	300 00



Calimyrna Fig

The Genuine Smyrna Fig of Commerce. It Has No Equal and the Demand Always Exceeds the Supply.

Bourjasotte Panache. The most ornamental of all fig trees. Fruit medium, striped green and yellow. Early August.

Brown Turkey. The earliest large fig. Color violet-brown. Identical with the so-called Magnolia Fig.

***Mission. (California Black).** Stands in the lead of all black figs for shipping and drying. Tree a vigorous grower and heavy bearer. Late in June and August.

San Pedro Black. Very large, elongated, ovate, no stalk; skin smooth, violet-black with green neck; pulp red, coppery tinted violet. One of the largest of figs; excellent for table use. Early in August.

San Pedro White. (Fico de San Pietro). "Apple Fig." The largest and handsomest early fig in existence, with excellent flavor and sweetness; skin golden-yellow, shaded green; very palatable. The second crop drops off unless caprifigged. Middle of June and late August.

Verdal Longue (Sultana; Verdal Honde). Very rich, sweet, aromatic. September and October.

***White Adriatic.** Fruit large; greenish yellow; pulp carnation-red. Second week in August.

White Celeste. A very small fig of amber color, pulp reddish. Fine for preserving and crystallizing. Early in August.

***White Endrich (Kadota).** Introduced over forty years ago by the well known nurseryman, Mr. W. B. West, of Stockton; original name lost and given name of Endrich, a fruit grower in the vicinity of Stockton, by Mr. West; has been sold under following names: White Endrich, White Pacific, Verdoni, Smyrna, Kadota. Medium sized; thin, white skin; pulp white. One of the best for canning and pickling. Inferior for drying. Never sours when planted in dampest locations. First week in August.

Wild or Capri Class

It is necessary to have one Caprifig tree with every 20 Smyrnas. Even where one Smyrna tree is planted, a Caprifig tree should be ordered. In plantings of any consequence it is important to have an assortment of Caprifigs.

SUPPLYING CAPRIFIGS

Our customers, if they will kindly notify us before March 15th in the year their Caprifigs are four years old, will receive free of charge a colony of infested figs in April for the purpose of colonizing the wasp in their Caprifig trees. At the most this will not require to exceed five figs to each tree. Please bear in mind that we do not supply Caprifigs for the pollinating of your Smyrna fig trees. In later years if we have figs to spare, we will be pleased to supply them at the market price.

	EACH	10	100
4 to 5 ft.....	\$0 70	\$6 00	\$50 00
3 to 4 ft.....	60	5 00	45 00
2 to 3 ft.....	50	4 50	40 00

Capri Magnissalis. By far the largest caprifig in our collection. Introduced by Mr. Geo. C. Roeding who mailed buds of this variety from Aidin where he discovered it in June, 1901. Figs of the Profichi crop 3 inches long by 2 inches cross diameters. Figs commence to ripen shortly after the Profichi of Roeding's Capri No. 1.

Capri Milco. One of the most promising varieties. A good producer of all the crops necessary to perpetuate the insect. Profichi crop rather late in maturing and valuable on this account.

Roeding's Capri No. 1. A very rapid, vigorous grower of spreading habit and with very large leaves. Produces an abundance of all crops; Profichi, Mammoni and Mamme, and matures its first Profichi June 12. Particularly valuable on account of its producing all the crops necessary for successfully carrying through all the generations of the Blastophaga.

Roeding's Capri No. 2. A very upright grower, branches very slender; leaves small. Produces an abundance of the Profichi crop, maturing somewhat later than the foregoing, the first figs ripening June 16, in which its value principally lies, as it lengthens the season of caprifigation of the Smyrna Figs.

Roeding's Capri No. 3. A decidedly distinct variety, branches much heavier and more closely jointed, than Nos. 1 and 2; leaves small and serrated. Figs of the Profichi crop very large, heavily ribbed and developing a larger number of galls with insects than either of the other two varieties, the first figs ripening June 8. A rather uncertain bearer of the other crops.



A Scene in Harvest Time. Trees Loaded to the Guards, and are Carrying from 300 to 400 Pounds to the Tree and Not a Single Prop is Used to Support the Branches. Results to be Proud of.

THE OLIVE

In California the olive has long since passed the experimental stage and is now being produced in quantities for pickling and oil purposes. The important position that it is destined to occupy as one of our leading horticultural industries can no longer be questioned.

California possesses the same soil and climatic conditions in which the olive thrives in the countries of Europe, Asia and Africa, and there is absolutely no obstacle to prevent our supplying the demands of not only this country, but becoming exporters of the numerous products for which the olive is noted.

The two countries which stand out most prominently as producers of olives are Italy, famous for its oil, and Spain, for its green pickled olives. In Italy there are 2,688,738 acres planted to olives, and according to reliable statistics, Spain has 3,546,515 acres. There are many insect pests threatening the olive in those two countries, which frequently curtail the output. There is very little likelihood of any of these pests or diseases gaining entrance into California, because we have all the leading and best European varieties growing here already. We have hundreds of thousands of acres, extending almost from the northerly to the extreme southern part of the state, in which olives can be successfully grown.

PICKLING THE OLIVE

The ripe pickled olive is permanently a California product. People who never eat the green olives, and those who do, usually have to acquire the taste for them, take to ripe olives like a duck does to water. Those who are engaged in the manufacture of olive pickles encounter only one difficulty, and that is to secure sufficient of the ripe olives to satisfy the demand of the consumer.

Every home should have an olive tree where there is sufficient ground, for one tree will supply all the olives which the average household will use for several months.

PLANTING

Today the transplanting of olive trees is comparatively an easy matter to what it was twenty-five years ago, when the industry was just beginning to attract the attention of horticulturists. At that time, unless the trees were potted plants,

they invariably died. After years of experimental work the cause of the trees failing to grow was found to be due to not topping the trees and shortening in the lateral branches when digging. This method of trimming overcomes much of the evaporation and loss of vitality through the foliage and much of the trouble formerly experienced has been overcome. In nearly all cases where trees fail to grow the trouble can be traced back to not again cutting the trees back after they are set or to careless handling on the part of the planter after the trees are received.

In order to insure the best results for the orchardists, we make an invariable rule to top prune and shorten all the lateral branches before shipment from the nursery. This method of trimming overcomes the evaporation and loss of vitality through the foliage, and is a very important point that we have learned by years of experience.

We do not recommend that olive trees be transplanted until the middle of February, for it is only in a few places that the growing season starts in earlier. When received at destination take them out of the receptacle in which they are packed and heel them in a sandy, warm soil and then turn a hose loose in the trench so that the soil will fill in all interstices and exclude the air. After the soil is settled fill in with loose soil and tramp it down. The trench should not be less than fourteen inches deep. The trees should stand upright, rather than at an angle. Treated in this manner they will remain in perfect condition until the ground is in shape for planting. As soon as they are taken out of the trenches and prior to planting, all bruised and lacerated roots should be cut off and a new, clean cut made on all the other roots. Before taking out to the field, puddle the roots in the same manner as is recommended for the fig. This particular phase of the operation must not be overlooked. Dig the holes to receive the trees as recommended for the general run of deciduous fruit trees and follow the other directions faithfully. Do not fail to cut the tree back to 2 feet after being planted and shorten all laterals to two inches. If there should be no laterals, cut the trees back anyway, for the olive will always force out its blind buds.

Olives may be taken up in the late fall or in midwinter, provided they are dug with a ball of earth. The trees start more quickly than those taken up with naked roots and almost a perfect stand of trees is insured. There is considerable addi-

tional expense entailed in digging and packing and in railroad charges, for a balled olive tree will weigh at least thirty pounds each.

The theory that olives can be grown successfully on poor, rocky soils has been exploded long ago. It is a fact that olive trees are found growing in such soils in many countries of Europe, as the writer knows from personal observation, but this does not indicate that olive culture is a success in such soils. The trees usually are scrawny, entirely lacking in the essentials which go to make a perfect tree, and would cause the orchardist accustomed to the fine, luxuriant trees as grown in California, to have heart failure if he had such prospects before him.

Do not make the mistake of planting the trees too closely together. The olive is a gross feeder and sends out a mass of small surface roots. Never plant closer than thirty feet in a good loamy soil, and forty feet apart on rich deep soils, with a deciduous tree between, with a view of taking it out as soon as the olives attain any size. Even in localities in which there is a bountiful rainfall, the trees should be irrigated not less than four times in the growing season for the first three years of their existence.

PRUNING

When the tree is planted it should stand at least four inches deeper than in the nursery rows. Allow the tree to grow without much interference the first year, for the more vigorous the new growth and the more of it, the stronger will be the root development. The first winter after planting trim all the growth off except 4 or 5 branches close to the head, and have these properly distributed, as they will ultimately form the main framework branches. Cut off two-thirds of their growth. The second winter trim the tree in such a manner as to leave from one to two laterals on the original framework branches, bearing in mind that these branches should have an upright tendency, and cut them in turn back at least one-half. In subsequent years this same method of thinning out and shortening in should be followed, and this cutting should be quite severe for at least four years. The workman should not always prune to an outside lateral, but should exercise some judgment to balance the tree by causing some branches to slope inwardly and force others to have an outward tendency.

This promoted sturdiness in the tree and a healthy uniform growth, also a broad bearing surface, many small lateral fruit-bearing branches, and naturally more fruit than an unpruned tree, the growth of which, if not checked, would consist of several straight, upright shoots with all the fruit-bearing branchlets in the top. In case of a heavy crop, these branches being without any natural braces, which would have developed by pruning, would bend over and in many instances break off. After a number of years the shearing off of the small laterals will cause many so-called "crows-nests" to form in the trees, and the new growth will be rather weak. It will be at least 15 years before the trees will reach this stage, but when they do there should be no hesitancy in cutting them back severely and thinning vigorously, to promote a strong, new growth. Even before this age the trees will have a large amount of inside growth, which, when it is no longer productive, should be cut out entirely. This does not mean necessarily that the trees should be thinned out like a peach, for this would be a mistake, but that wood which indicates by its appearance that it has lost its vitality should be removed, for it will soon be replaced by new wood.

Our nurseries have been more closely associated with the growing of the Olive than possibly any other concern in the State. Twenty-five years ago we were growing over 30 varieties of olives. At that time equal attention was being given to both the oil and pickling varieties. Now that it has been demonstrated that a good pickling olive makes an excellent grade of oil in nearly all cases, the elimination of so many varieties has been very pronounced. The demand has dwindled down to a few standard varieties which seem to meet the exacting demands of the firms engaged in the business commercially.

We are devoting our attention particularly to growing the best types of these recognized standards, the cuttings having been taken from our own orchards, of which there are none superior in the State.

Olive trees are sold on the basis of caliper measurement, the heavier the body, the higher the price.



Mission Olive—This Olive Leads All Other Varieties as a Pickling Olive.

Prices and Varieties

	EACH	10	100	1000
1 inch up.....	\$1 00	\$9 00	\$80 00	\$750 00
¾ to 1 inch caliper...	90	8 00	70 00	650 00
⅝ to ¾ inch caliper...	80	7 00	60 00	550 00
½ to ⅝ inch caliper...	70	6 00	55 00	500 00

Chemlaly (New). There are several hundred thousand acres of these olives growing in Algiers on arid lands and the orchards are never irrigated. The trees are enormous bearers and remarkable growers. The olives are small and only adapted for oil purposes.

***Manzanillo.** One of the standards for green and ripe pickles. Produces oil of a very high grade. Very hardy, and a regular and prolific bearer. First week in October.

***Mission.** Tree a handsome, upright grower, and fine for avenues. Medium to large; excellent pickles; makes a superior oil. Late October.

Citrus Fruits



A View of Our Citrus Nurseries. Note Uniformity of Growth.

That citrus culture is one of the great and growing industries of California can no longer be questioned when it is borne in mind that the shipments amount to \$40,000,000.00 and over annually.

Citrus trees are either dug with a ball of earth varying in weight from 25 to 40 pounds, or they are taken up with naked roots. The former method is usually followed in handling trees in California. Freight charges on stock handled in this manner are heavy, still the satisfaction of knowing that with ordinary care every tree will grow, offsets the slight additional expense incurred in transportation charges. Trees taken up in this way can if necessary be kept in a shed for several months before planting, if the balls of earth are watered occasionally. In taking up trees with naked roots the greatest care should be exercised on the part of the orchardist to avoid exposure. When set, the leaves should be stripped off to retard evaporation and loss of sap in consequence. In planting set the trees so that when the soil is settled the union of the bud with the stock will be at least several inches above the ground.

Be sure to settle the earth around the trees with water, whether planted with naked roots or balled. In filling in the hole around a balled tree, never tramp on the top of the ball, as it will break it, dislodge the fibrous roots and in many instances cause it to die. After the hole, in which a balled tree is planted, is partially filled, cut the cords by which the burlap is tied to the tree; the burlap need not necessarily be removed as it will soon rot.

Budded trees should be planted not closer than 22 to 24 feet on the square method; with the exception of such varieties as Satsumas, Limes and Kumquats, which are of a dwarfish habit, and should be planted from 12 to 15 feet apart.

TIME TO PLANT

Citrus trees being evergreen they can be planted at all seasons of the year, although the months of March, April, May and June are considered the most favorable. In the interior valleys where it is extremely hot and dry during the summer months, it is advisable to plant as early as possible in the spring, although planting should not commence until the ground is fairly warm, so that the tree will immediately start to grow. Trees planted too early, while the ground is still cold and wet, will remain in a dormant condition until the ground gets sufficiently warm so that they can make a start. When this condition prevails for any length of time it causes the finer roots to decay; as a consequence of this, when the tree does start, it will make rather a slow growth until new rootlets are formed. For this reason it is advisable to defer planting until conditions are favorable for the tree to start to grow as soon as planted.

Along the coast where the summer climate is more moderate, citrus trees are planted with good results all through the spring and summer months. In fact, the trees planted during June and July seem to make nearly as good a growth as those planted in the spring. Where planting cannot be done before this time, it is our opinion that July or early August planting is preferable to waiting over until the following spring. Even though the trees do not make quite as vigorous a growth as those planted earlier in the season, they make sufficient growth to become thoroughly established, in consequence of which, they are all ready to start with the first touch of spring and are far ahead of any that can be planted at that time.

The only thing necessary to successful summer planting is to see that the trees are properly handled from the nursery to the orchard and are sufficiently well irrigated and cultivated. The prompt application of water to newly planted trees is very essential in late planting.

STOCKS

In order to meet soil and climatic conditions in different sections, we bud our citrus trees on the following stocks: Sweet Orange, (*Citrus Aurantium Dulcis*), Sour Orange, (*Citrus Aurantium Amara*), and Deciduous Orange (*Citrus Trifoliata*). On the first named sort the budded trees outgrow those on any other root, and practically all the old groves of the State are worked on this stock and are thrifty and healthy, except when situated on soils where there is an excess of moisture during certain seasons. Sweet Orange seedlings are grown from the seed of the common sweet seedling orange. Sour Orange seedlings are grown from the seed of the sour orange so extensively grown in Florida as a seedling for budding practically all types of Citrus trees. Although the buds do not grow as rapidly or attain as large a size in mature trees, this stock is very resistant to gum disease, hence it has been much in demand in recent years for heavy soils where water was apt to stand for any length of time either because of summer irrigation or a heavy rainfall in the winter months. The *Citrus Trifoliata* is a native of Japan and is the hardest orange known. It is deciduous, its fruits are very bitter and of no commercial value, but its hardiness seems to exercise a decided influence on the budded tree. It is more resistant to cold than any other stock.

Actual experiments have proven that trees grown on this stock come into bearing earlier, produce heavier crops when the trees are young, with no tendency to change in this respect as the trees attain age, and although the development of the tree is somewhat slower, it is indicated more by a close compact growth. That the trees do bear regularly and heavily; that they do mature their oranges earlier; and that the orchards are up to the standard of those grown on other roots, is shown by trees in full bearing which were grown by us. In most cases where the tendency of a stock is to dwarf the tree on which it is worked, the stock will be smaller than the body of the tree. With the *Trifoliata* root the very opposite is the case.

PRUNING

Our citrus trees are headed at about twenty-eight inches from the ground, hence all that is necessary for the planter to do is to shorten the branchlets to about six inches and to thin them out, not leaving more than six if they have a tendency to be overcrowded.

Trees headed at four feet or more should be cut back to 28 inches for the purpose of forming a new head. High headed trees are always objectionable, for they not only expose much of the stem causing sunburn, but in addition to this the tree is retarded in acquiring a sturdy compact growth. In pruning, above all things do not be deceived into the idea that the trees must be thinned out to admit air and sun. The tendency of nearly all the budded varieties is to droop, so in shaping the tree cut to a lateral which has an upward tendency.

There is no variety of fruit trees grown that is so exacting in its demand for favorable soil and climatic conditions as citrus trees. Our nurseries at La Habra, Orange County, California, which are devoted to the growing of citrus and other tropical and semi-tropical fruits, are admirably situated for growing the very best of stock. Intensive cultivation and close attention to every detail must be exercised to grow the high-grade citrus trees which we supply to our customers. We grow trees on Sweet and Sour roots. We use the greatest care in the selection of buds from trees showing the best type and continuous bearing habits. You may also feel confident that our trees will grow and produce the maximum of large fruit if planted in proper soil and under favorable climatic conditions. Roeding citrus trees have made a great record for themselves with thousands of planters throughout the state.

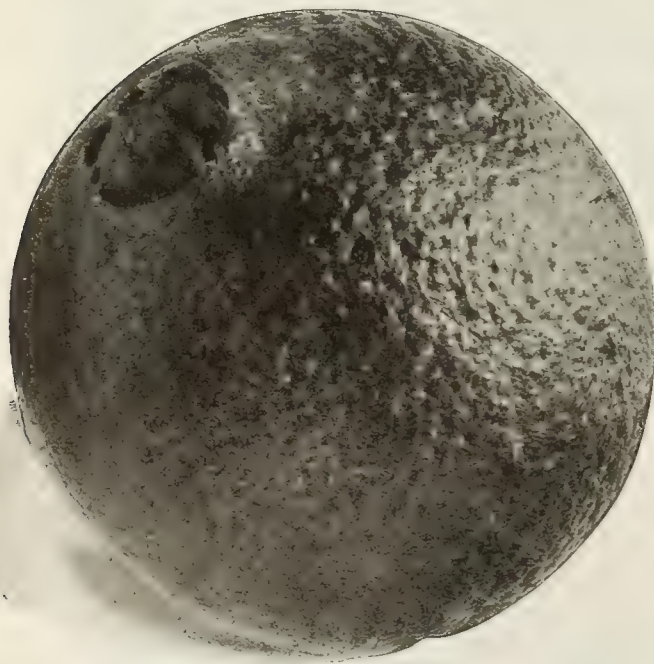
In less than carload lots the freight rates on citrus trees have been greatly reduced over those prevailing a year or so ago, making quite a reduction to purchasers in transportation. Our charges for boxing and packing cover only cost of material.

THE ORANGE

An orange tree for the first four years of its existence does not require thinning out, as is the case with deciduous trees, but it does need systematic shortening in of the rampant growing branches which draw it out of shape. This cutting may be carried on in the summer months and then again in the spring just before the trees start to make their new growth. Although the principle of pruning the orange tree is the very opposite of that employed in shaping deciduous trees, we cannot too emphatically lay stress on the extreme importance of the free use of the pruning shears in the shaping of an orange tree. Unless lateral branches from the main body of the tree are actually interfering with each other, do not cut them out, but leave them alone to lend their aid, in forming a fine compact, well rounded head. It is no trouble to cut them out in later years when they cease to be fruitful. If you want to grow crops of oranges don't expect it by having all fruit on the outside of your tree. The natural tendency of an orange tree is to have its inside branches protected from the rays of the sun and every effort should be made to maintain this condition. During the formative period, any ambitious branches shooting skyward far beyond the others, should be cut off and forced to develop laterals which will gradually build the tree upwardly as well as outwardly.

A well pruned orange tree should present a compact mass of foliage with none of the branches exposed to view. Never neglect to protect the stems of young trees, for the first two years. Wrap with burlap, paper or tules, but the best and most serviceable tree protector is one made of yucca fibre. This allows the free circulation of air around the stem of the tree. The protection of the stem prevents the development of suckers and obviates the danger from sunburn, while the top growth is stimulated.

In most localities during the summer months citrus trees must be irrigated every three or four weeks. In heavy adobe soils every precaution should be taken not to allow the water used in irrigating to touch the stem, as it will cause gum disease.



Washington Naval Orange



1 year bud $\frac{1}{2}$ to $\frac{3}{4}$ in. 1 year bud $\frac{3}{8}$ to $\frac{1}{2}$ in. 2 year bud $\frac{3}{4}$ to 1 in. 2 year bud 1 in. up
Citrus Trees Balled

Oranges—Prices and Varieties

On Sweet and Sour Roots:

	EACH	10	100
1 inch up.....	\$2 50	\$20 00	\$175 00
$\frac{3}{4}$ to 1 inch caliper.....	2 00	18 00	160 00
$\frac{5}{8}$ to $\frac{3}{4}$ inch caliper.....	1 75	16 00	150 00
$\frac{1}{2}$ to $\frac{5}{8}$ inch caliper.....	1 50	14 00	130 00

Golden Nugget Navel. Oblong; good size; deliciously sweet; seedless. November to March.

Joppa. Fruit large; red; nearly seedless; pulp very fine, sweet, juicy. April to July.

Mediterranean Sweet. Large; pulp solid and few seeds; ripens late. February.

Navelencia. Ripens sixty days after Washington; equal to the very best. April to June.

Ruby Blood. Medium; very smooth; pulp red, rich, juicy and melting. January to April.

St. Michael. Small; round; firm; thin skin; pulp juicy and very sweet. February.

Thomson Navel. Medium size; very smooth and thin; pulp juicy. Earlier than Washington Navel. November to January.

Valencia Late. Large; reaching the market when all other varieties are gone. Second only to Washington Navel in the extent of its dissemination. The summer orange of California. Ripens from June to September.

Washington Navel. In California it has reached its highest stage of perfection, and stands in the lead of all other varieties for its large size, lusciousness and sweetness of pulp. The most extensively planted variety on the market. November to March.

THE LEMON

It is generally understood that the lemon will not stand as low a temperature as the orange, hence its planting for commercial purposes is restricted to localities where the temperature during the winter months does not go lower than 24° Fahrenheit above zero. The tree is a straggling grower and the branches must be held in check by systematic annual pruning, for left to itself the fruit will be on the ends of the long unrestrained branches. There are many systems of pruning but the fundamental principle is to produce compact but not too dense low headed trees with a large amount of bearing surface on easily accessible branches.

When the tree is first planted the same directions as given for the orange should be observed, but in the subsequent prunings the method of procedure is quite different. Not more than four branches are selected to form the framework of the tree. These in turn are persistently cut back and encouraged to assume a nearly horizontal position. Any branches showing an inclination to make a strong growth in a vertical direction are cut down and forced to develop laterals. This continuous pruning back has a tendency to produce a dense mass of branches and foliage, and as the tree grows, some thinning out is necessary. The result obtained by following out this system of pruning is a shapely broadened out tree, liberally supplied with numerous fruiting laterals permitting the gathering of the greater part of the fruit without the use of long ladders.



Well-Shaped Eureka Lemon Tree

Lemons—Prices and Varieties

On Sweet and Sour Roots:

	EACH	10	100
1 inch up.....	\$2 50	\$20 00	\$175 00
$\frac{3}{4}$ to 1 inch caliper.....	2 00	18 00	160 00
$\frac{5}{8}$ to $\frac{3}{4}$ inch caliper.....	1 75	16 00	150 00
$\frac{1}{2}$ to $\frac{5}{8}$ inch caliper.....	1 50	14 00	130 00

•**Eureka.** Medium size; sweet; smooth, glossy; abundant acid and very little rag. Popular on account of its heavy summer crop, maturing when Lemons are in greatest demand.

•**Lisbon.** Medium size; sweet rind and strong acid; few seeds; an excellent keeper; fruit very uniform. Tree a strong grower, thorny, but thorns decrease as tree grows older. Very popular in the San Joaquin Valley. Very hardy and a prolific bearer.

Villa Franca. Oblong; rind thin, without any trace of bitterness; pulp acid, juicy, nearly seedless. A fine commercial variety.

THE GRAPEFRUIT

Pomelo

"Grapefruit," the name usually applied to this fruit, is really a misnomer, but it has become so customary to designate it as such, it is not likely that the proper name will be used again. The name undoubtedly arose from the fact of the fruit being borne in clusters of from three to fifteen fruits in a bunch. The Pomelo is really an improved Shaddock. The Shaddock, except for ornamental purpose, is of no practical value, for the fruits are extremely large, coarse, and are lacking in every essential necessary to make an edible fruit. The Pomelo is much sought after for its medicinal qualities, and as a healthful breakfast relish it excels every other fruit.

Its popularity is constantly increasing, and the demand for it far exceeds the supply. The most popular variety in California is the Marsh's Seedless. As the seeds of the Pomelo are very objectionable, any new varieties which are originated will not receive much recognition unless they are practically without seeds. The tree is fully as hardy as the orange, and the instructions for pruning the orange will answer admirably for the Pomelo. Trees should not be planted closer than twenty-four feet.

Grapefruit or Pomelos—Prices and Variety

On Sweet and Sour Roots:

	EACH	10	100
1 inch up.....	\$2 50	\$20 00	\$175 00
$\frac{3}{4}$ to 1 inch caliper.....	2 00	18 00	160 00
$\frac{5}{8}$ to $\frac{3}{4}$ inch caliper.....	1 75	16 00	150 00
$\frac{1}{2}$ to $\frac{5}{8}$ inch caliper.....	1 50	14 00	130 00

✓ •**Marsh's Seedless.** Medium to large; skin very smooth, glossy, lemon-yellow color; pulp juicy, with very little rag. The finest variety of Pomelo. The fruit will hang on the trees till late in September the following year. Our buds are taken from record performance trees of the highest standard type in the Geo. C. Roeding Co. orchard at Exeter, Tulare County. The fruit from this orchard is sold annually to the Palace Hotel, San Francisco and the unexcelled "Harvey System" on the Santa Fe

Special Varieties Citrus Fruits

EACH
Price.....\$2 50

CITRON

The tree is even more tender than the lemon, and should therefore be planted where there is very little danger from damage by frost. The fruit is prepared for use by immersing in a brine for several months, and after washing it is placed in a hot syrup, remaining for three weeks. Later it is cooked with crystalized sugar dissolved in water, being cooked and cooled alternately until it has taken in sufficient sugar, when it is ready for the market.

The tree grows very much like the lemon, except that it is of more dwarfish habit. Best results are obtained by training the tree along the same lines as recommended for the lemon.

Citron of Commerce. Large, weighing from 3 to 5 lbs; shaped like a lemon; skin bright yellow, smooth and very glossy. The tree is of a dwarf habit, with large, glossy leaves and very ornamental.

LEMONS

Imperial. This new variety was secured by Mr. Geo. C. Roeding from Thos. Rivers & Son, Sawbridgeworth, England, leading fruit tree nurserymen of Europe in 1912. This lemon has been fruiting now for several years in our trial grounds at La Habra, Orange county. The tree is not only a very rapid, strong grower, outstripping every other variety in our collection but in addition to this it produces lemons of the highest quality, smooth and thin skin, and in many cases the fruits are without seeds. We are confident this variety is going to prove a valuable asset to our list of citrus fruits

Ponderosa. An ornamental type of dwarf habit, adapted to small gardens. Fruit large and abundantly supplied with juice. Of no commercial value.

LIME

Valuable for its citric acid, which is extensively used in the concoction of summer drinks, and especially palatable as a lemonade. The juice is also used in medicine and in the arts. Its export from the West Indies constitutes an important branch of commerce, great quantities being exported to Europe and the United States. Fancy limes, and especially the newer seedless sorts, command good prices in the leading markets of the Western States, the average being from \$4 to \$6 per box. The tree is more tender than the orange, hence should be planted only in the sheltered foothill regions of the State. Commercial orchards should be planted from fifteen to twenty feet apart. It likes a moist soil, and in California a lime grove should be liberally irrigated. The tendency to form a dense bushy head should be encouraged by following somewhat more strenuously the instructions given for pruning the orange.

•**Bearss Seedless.** Very large; seedless; very juicy; with pronounced acidity. One of the best in cultivation. Hardy, enormously productive, and matures fruit year round.

Mexican. Largely used in California for hedges; fruit large and excellent.

ORANGES

King Mandarin. Fruit very large, flattened with loosely adhering skin. Color orange red; skin rough; flesh deep orange red, juicy and meaty.

Kumquat. About the size of a large gooseberry; rind sweet, juicy, acid, delicious and refreshing. Tree dwarf and desirable for pot and garden culture. May to July.

New Satsuma. Buds of this were forwarded to us several years ago by Dr. Trabut, of the French Government Experiment Station, Algeria. The tree is not quite as vigorous as the ordinary Mandarin or Satsuma. It is more of a dwarfish habit and in addition to this is very striking on account of its willow-like foliage, making it a very handsome ornamental tree as well as being a heavy producer of most luscious oranges. The fruit is of the true Mandarin type with a few more seeds. The flavor is of the best and the fact that it ripens fully a month earlier, combined with the fact that it is exceedingly ornamental, as well as being very prolific, will make it a valuable acquisition for small gardens.

New Tangerine. A vigorous, upright grower like the Dancy Tangerine. The fruit bears very close resemblance to the ordinary Tangerine, is almost seedless and ripens fully three months earlier. It gives promise of being one of the most valuable of our late introductions in the citrus line.

•**Satsuma (Unshiu; Oonshiu).** Deep yellow; flesh very tender, juicy, October to December.

•**Tangerine (Dancy's).** Medium size; very sweet; rind thin and separating readily. March.

Variegated Valencia Late. Similar to the well-known Valencia Late, except that the leaves and fruit are variegated. Fruit is nearly seedless and contains but little rag. Makes a showy ornamental tree.

Willow-leaved Mandarin. Skin thin; flesh dark orange-yellow, spicy and aromatic. Tree handsome. December to February.

New and Valuable Introduction in Citrus Fruits

Price EACH \$3 00

GRAPEFRUIT (Pomelos)

Duncan. Large size, slightly flattened at both ends. Skin very smooth and of fine appearance. Quality of the best. Strong grower and heavy producer. Precocious.

Foster (Pink Flesh). Originated in the Atwood Grapefruit Grove near Oneco, Fla. The only grapefruit with rose-tinted flesh. Large, flesh tender and juicy. Flavor mild.

LIMES

Rangpur. This is a very valuable Lime, unlike any known to the trade. The fruit has the appearance of a Tangerine, with the same loose skin, but with an intense acid and valuable for the uses that limes or lemons are put to. The tree is a very prolific bearer and a novelty of great value.

Sweet. Introduced from Europe by the U. S. Dept. of Agriculture. The fruit is medium size, skin thin. Unlike all other varieties the juice is sweet and highly flavored.

ORANGE

Lue Gim Gong. Originated at De Land, Fla. Believed to be a cross between Hart's Late and Mediterranean Sweet. Large; similar to Valencia in shape, a good keeper and a fine shipping fruit. Fruit known to hang on tree for two years. Quality good. Tree very hardy.

TANGELO

Samson Tangelo. This interesting novelty is a hybrid of the Tangerine and Pomelo. The fruit is large, skin smooth, pulp juicy and of a delicious flavor. A fine breakfast fruit.

Miscellaneous Fruits



Tane-Nashi Persimmon

THE PERSIMMON

In this country there are but two varieties in cultivation, viz., the American and Japanese. The latter, on account of their attractive appearance and large size, are destined to be extensively planted as soon as their commercial importance is more appreciated. The impression that the fruits must be on the verge of decay before they can be eaten has militated against their sale. There is much variation in the character of the fruit. Some varieties are not astringent at all and are edible in early autumn, while still hard and green. Several kinds never soften at all until they decay; others are edible only when fully ripe and soft; still others lose their astringency only after they have been dried, and some so abound in tannin that their juice, when expressed, makes a valuable varnish for preservation of all kinds of woodwork. There is quite a distinction between the dark and light fleshed varieties. The former invariably contain seeds, are crisp and meaty, and are edible before they soften, although their flavor is improved considerably when they reach this stage; the light fleshed kinds are seedless (or mostly so), and cannot be eaten until they soften.

Persimmon culture commercially centers in Japan.

California offers great possibilities in the culture of this most delicious fruit. It will adapt itself to a wide range of localities. The fruits will very often hang on until January, providing there have been no heavy frosts and a tree loaded with this deep russet golden fruit is a sight to behold when all the leaves are off.

There is an endless number of varieties, Japan holding the lead in this respect, and China being a close second. Through the very thorough and able efforts of the Division of Seed and Plant Introduction of the United States Department of Agriculture, it is hoped within the next few years that the almost hopeless confusion which seems to surround the nomenclature of the Persimmon will be solved.

PLANTING AND PRUNING

Trees should be planted 24 feet apart. The Persimmon has a rather decided tap root with numerous small fibrous roots. The tap root should be cut back to 18 inches and fresh cuts made on all the fibrous roots. After the trees are set, head back to 18 inches. The first winter thin out the branches not leaving more than four to form the head of the tree. Cut these back at least one-half. In the second, third and fourth years the pruning of the tree should be continued to fashion the tree into the typical goblet form. A better quality of fruit and running into large sizes with a more regular distribution of fruit over the entire tree will be effected by pruning every year. The trees are quite hardy and fruit freely in all sections of the Coast and in the Southern States, and as far north as Washington, D. C. Persimmons do not bloom until the middle of May. Therefore, under average normal conditions the trees always bear fruit.

The astringency is readily removed by placing the fruit in Japanese tubs, from which Saki (Rice-beer) has been recently withdrawn. After the persimmons are placed in the tub, close carefully to exclude the air. In ten days the fruit, although perfectly firm, will have lost all its bitterness.

A new simple process of alcohol inoculation is lately practiced. Pierce the fruit at the bottom several times with a common needle dipped in alcohol and pack them in a tight box or container lined with straw and layers between the rows, keep the box closed for 10 days.

It is not generally known that the Persimmon is delicious when dried. It is so sweet, so rich in sugar and has such a unique flavor that one who has never eaten the dried persimmon before, immediately comes to the conclusion that the fruits have been crystallized. The method of drying is simple: skin is pared off and the fruits are suspended by the stems on a stick and exposed to the sun when they gradually lose their original form—turning quite dark and covered with sugar crystals. The dried persimmon is considered by many to be more delicious than the "Date of Commerce." Fruit should be picked for drying when yellow and firm.

Budded Persimmons

	EACH	10	100
6 to 8 ft.	\$2 00	\$15 00	\$125 00
4 to 6 ft.	1 50	12 50	100 00
3 to 4 ft.	1 25	10 00	

Dai-Dai-Maru. Fruit very large, round, somewhat flattened, color light yellow, flesh delicious, firm, juicy, very good; seeds generally absent.

***Hachiya.** Fruit very large, oblong, conical pointed toward the apex; skin bright red with occasional dark spots or blotches, flesh deep yellow, soft and jelly-like when ripe; seeds usually absent; a valuable variety, considered to be one of the best. Dried quite extensively in its native home, Japan. One of the earliest. October.

***Hyakume.** The name means "Hundred Momme," a weight equal to four-fifths of a pound and referring to its size; fruit very large, slightly oblate; skin orange yellow; flesh rusty brown, with many purple or dark spots, and but few seeds; ripens early, and not astringent even when hard. October.

Mammoth Goshu. Very large; round; somewhat flattened. Specimens average 10 ounces. Flesh red. Tree erect grower. September.

✓ **Tane-Nashi.** Exceedingly large, broadly oblong, pointed; skin light yellow, changing to bright red at full maturity; flesh yellow, seedless; quality very fine; must be fully ripened before eating; tree a vigorous grower, a prolific bearer. A valuable market variety, and on account of its size, and earliness one of the best for drying. Middle of September.

✓ ***Yemon.** Fruit is large, oblate, tomato shaped, more or less square in outline, folded at apex; skin light yellow, changing to dull red; flesh deep yellow, seedless or nearly so, like all seedless yellow fleshed varieties cannot be eaten until soft November.

AVOCADO—Alligator Pear

A tropical or subtropical pear-shaped or spherical fruit, of great food value, which will undoubtedly become one of the leading commercial fruits of California, as all who have tested it so far are enthusiastic in its praise as an income producer.

Recent experiments have demonstrated that this highly nutritious, nutty flavored fruit may be grown wherever the Orange thrives but commercially they should not be planted where the temperature goes below 28 degrees Fahrenheit.

Where conditions will permit no one should neglect to plant one or more trees of this delicious fruit.

At Santa Barbara and in similar sections in Southern California and other warm sections, the Avocado is being planted commercially and soon our markets should be well supplied with fruit. Our trees are grown in our La Habra (Orange County) Nurseries, where climatic conditions are very favorable for producing thrifty dependable trees.

Budded Varieties

	EACH
Boxed, 2 to 3 ft.	\$4 00

Except Special Sorts.

✓ **Harman.** An extra hardy pear-shaped, thin-skinned variety, ripening in early winter, having a smooth, rich, nutty flavor. Tree an upright, uniform grower, bearing purple fruits weighing slightly over one-half pound. October to December.

Meserve. A round, slightly pear-shaped, thick-skinned variety of greenish color, weighing about one pound. A rich, buttery flavor. Ripens April to June.

✓ **Northrop.** Purple, thin-skinned, medium size; pear-shaped; rich flavor. Contains 25% fat. Tree very hardy and vigorous. September to November.

Taft. A pyriform green thick-skinned variety weighing about a pound and ripening in midsummer, with a fine velvety rich flavor. Tree a uniform grower, very ornamental.

SPECIAL SORTS

	EACH
Boxed, 2 to 3 ft.	\$5 00

Fuerte. Mexico. Without question the Fuerte is the finest variety imported from Mexico. The fruits are broad and oval. 4 inches long and averaging 14 oz. in weight. The skin is green and thick; flesh, yellow, buttery and of the highest quality. Fat contents 26%. Tree a strong upright grower and hardy for the northern part of the state. A grand variety. October and December.

Lyon. Fruit large, pear shaped. Surface rough. Rich green color, skin moderately thick. Flesh cream-colored, free from fiber, flavor rich and nutty. Very precocious—some trees bearing in second year. Heavy bearer, recognized by many as the leading Avocado.

Sharpless. A most promising variety. Fruit large, pear-shaped. Quality is of the best. Seed small. Possesses all the good qualities of an ideal avocado.

Spinks. Guatemala type. Originated at Duarte, California. The fruit is large, spherical and about 5 inches long, weight averaging 27 ozs. Skin purplish black, thick and hard. The flesh is cream colored and of a rich delicious flavor. Tree is a precocious and prolific bearer. February to August.

Seedlings

	EACH	10
Balled.....4 to 6 ft.	\$1 00	\$7 50
Balled.....3 to 4 ft.	75	6 00

POMEGRANATES

The natural habit of the pomegranate is to grow bushy and it bears indifferently if pruned heavily.

Growers of pomegranates are finding an increased demand for the fruit and there seems to be much encouragement for the planting of a considerable acreage at this time.

A cooling acescent drink known as grenadine is made from the pulpy seeds. It is served throughout the country at the large soda fountains where it is gaining in popularity. It is especially cooling in fevers. The juice or extract brings a higher price than any other flavor. The fruit sells for good price in Eastern markets.

	EACH	10	100
3 to 4 ft.	\$0 70	\$6 00	\$50 00
2 to 3 ft.	60	5 00	45 00

***Sweet-fruited.** Fruit large, with sweet, juicy pulp; ripens in September.

✓ ***Wonderful.** The largest and most attractive. Valuable for shipment. Ripens early. Pulp a rich garnet color, with an abundance of juice, dark as port wine; exquisite flavor. October.

GUAVAS

More of a shrub than a tree. Very ornamental on account of their glossy foliage, abundant flowers and showy edible fruit. All varieties are tender and will not thrive in localities where it becomes very cold in the winter months.

	EACH	10
Pot-grown.....2 to 3 ft.	\$0 50	\$4 00

✓ ***Pear or Lemon Guava.** Grows to be a large shrub. Should be planted only in favored localities, as it is tender; fruit pear-shaped, yellowish; prized for jellies and jams.

***Strawberry Guava.** Shrub or small tree, producing fruit of a fine deep claret color, with strawberry-like flavor.

LOQUAT

A beautiful evergreen shrub or tree attaining a height of 15 to 20 feet, bearing pear-shaped fruit of a pleasant acidulous flavor and of lemon-yellow color.

The large budded varieties listed below are far superior to the seedlings usually grown. The loquat is used quite extensively for making jellies, jams and preserves. Trees are easily grown and may be planted 20 to 24 feet apart.

Budded Varieties

	EACH
3 to 4 ft.	\$2 00
2 to 3 ft.	1 50

***Advance.** Very large; deep lemon-yellow; flesh firm, juicy, sweet. One of the best.

***Premier.** Fruit large; lemon-yellow; flesh melting, juicy and sweet; seeds small.

JUJUBE (Chinese Date Plum)

Beautiful ornamental tree, with bright, glossy green, locust-like foliage.

Quite an important fruit in China. Tree hardy and will stand much neglect; may be planted where there is considerable alkali. Fruit similar in appearance to the Persian date, especially when dried. Very rich and delicious flavor when cured. Deserves to become well known in California. Ripens in October.

	EACH
4 to 6 ft.	\$2 00
3 to 4 ft.	1 50
1 to 1½ ft.	75

THE GRAPE

Even in Europe there is a charm in the name "California." This should occasion no surprise, for within the confines of this State there is not a single variety of fruit bearing tree, plant or shrub that cannot be grown to greater advantage here than in its nativity, where their culture has extended into centuries. The grape is no exception to the rule. It is in Fresno County where the grape industry centers, but it is rapidly expanding and wherever irrigation is practiced in either the San Joaquin or Sacramento Valleys, there is sure to be a corresponding development of this industry.

LAYING OUT A VINEYARD

First establish your base lines. It is best to have this done with a transit, particularly if there are no established regular subdivision lines to work from. If the base lines are not at right angles, the rows will not be straight, and nothing is more unsightly. The difficulty of plowing and cultivating, and the advantages of straight rows will be readily understood. For planting, use a steel woven No. 19 galvanized wire, dividing same up into sections as recommended under the heading "Methods of Planting," and at equidistant points on the chain a piece of wire is wrapped to which markers are attached and soldered into place. It is necessary, of course, to change the markers to other points for planting at greater or less distances. It is best to have the wire chain the width of the check, the last link coming flush with the stake indicating the roadway. These roads should be at intervals of twenty-four rows for a wine and table vineyard and thirty rows for a raisin vineyard. Start at one corner of the field with the chain, which should have three-inch rings at each end for inserting the iron stakes. These should be made of one-half by two-inch iron, two and one-half feet long and drawn down to a point at one end. The stakes which are to be used as markers may be split out of redwood, or any other material for that matter, and at least six inches of one end dipped into a bucket of whitewash, so that the line of the base rows may be readily seen.

Having set the stakes along the outside line at the distance apart the vines are to be planted, start at the same end of the field again and set another line of stakes parallel with the first



A Pruned and Unpruned Grape Vine. Figure to the Left Shows How to Prepare Vine for Planting



A Two-Year-Old Emperor Vine Showing Distribution of Spurs.



An Eight-Year-Old Emperor Vine with Spurs Well Distributed Along the Cane.

line and the length of the chain distant from the outside line. Proceed in this manner until the entire field is laid out in checks. With this preliminary work done, and having exercised care in the measurements to have the base lines parallel and the stakes in each block opposite each other, no difficulty will be experienced when planting commences to have the vines line up.

DISTANCE TO PLANT

This always gives rise to much discussion, and opinions vary so that the planter is often in a quandary as to what course to pursue. The prevailing practice is to plant wine grapes 8x8 feet, leaving out the twenty-fifth row for an avenue. For wine and table grapes the avenues should not be farther apart than this. As it is necessary to carry out the grapes in lug-boxes to the avenue, the pickers (if the work of harvesting is done by contract) demand more per ton for the picking than where the checks are twenty-four vines wide. For types of raisin grapes which are to be short pruned and headed low where the drying is to be done on trays in the vineyard, any of the following distances are satisfactory: 8x8, 7x10, 6x12 feet, always leaving the wide rows east and west, so the trays shall get the full benefit of the sun's rays. In this case the checks may be thirty rows wide. For staked vines of raisin grapes, where the drying is to be carried on in the vineyard, 6x12 feet is undoubtedly the most economical distance to plant, as picking is much facilitated, the trays get the full benefit of the sun, and the raisins cure quickly, which is not the case where vines are closer together. Table grapes should not be planted closer than 8x10 feet, with the wide rows north and south. The grapes then have more exposure to the sun and mature more uniformly. This rule applies more particularly to the varieties which ripen rather late, like Cornichon, Emperor, Gros Colman, Black Morocco, etc.

PREPARING FOR PLANTING

All rootlets, excepting those starting from the base of the vines, should be cut off. Next shorten in all the roots radiating from the base of the cutting from two to three inches.

Then prune the top of the vine, leaving only one spur with from one to three buds. The vines should be pruned a day or so in advance of the planting, and the work should be entrusted to careful men. As soon as pruned, the vines should be heeled in and the soil either wet or tamped down to prevent the roots from drying out. The heeling-in ground should be centrally located, so that it will not be necessary to carry the vines too long a distance to the planters.

HOW TO PLANT

Each man should be provided with a bucket or five-gallon coal-oil can. A small quantity of water in the bottom will keep the roots moist. Each bucket should be filled with vines, and replenished from time to time with vines as they are needed by the planters.

The planting wire should be stretched across the first check to two stakes which should be directly opposite to each other. Each planter should have charge of two marks on the wire. As an illustration, figure on a basis of planting the vines eight feet apart each way and leaving out every thirty-first vine for an avenue. It would be necessary to have a wire chain 250 feet long over all, including a two-foot link at each end for the ring and to permit drawing the chain taut. To such a chain it would be necessary to have seventeen men, two to stretch the chain across the field between the two stakes set opposite each other in the check and fifteen to do the planting. The marks eight feet apart in the chain indicate where the vines are to be set. In planting, the vine should be set so that the collar will be level with the top of the ground when it is settled, except with grafted vines, which will be referred to later. The soil in the bottom of the hole should be loosened up, and that used to fill in should be top soil, the first few shovels of which should be well tramped in, the top being left loose. Having set this line of vines the chain is carried to the next two line stakes, and so on until the check is planted. Within one week after planting the earth should be settled around the vines either by hauling water to them or by irrigating, running the water in furrows along each row. This is important, for even with a good field boss over a crew of men, some of them will be careless, fail to tramp the soil around the roots, and unless a timely and heavy rain should cause the soil to settle, the vines will dry out and die.

2x2 inches. Their length will depend largely on the variety of Grape to be trained to the stake. For Muscat vines and other vines which do not make long canes a 3 foot stake will answer. For Malaga and stronger growing vines in its class use a 4 foot stake and for Emperor, Flame Tokay, Cornichon, Sultana, and Thompson Seedless the stake should at least be 6 feet long.

In making my recommendations in reference to pruning I am going to discuss varieties on a basis of "Standards." In other words, a Muscat and vines in its class, making short canes will be referred to as low standards, meaning that the height of the cane would not exceed 24 inches. The Malaga should be termed as a medium standard, cane not to exceed 32 inches, and the Thompson Seedless high standard, cane not to be longer than 42 inches.

No difficulty will be encountered under ordinary conditions in securing a low standard cane the first year, provided the growth of the vine has been tied up as directed. If the cane shows by its size that it is not strong enough to be carried to its maximum height in the first winter pruning, it should be cut off to a point where it is sturdy and during the growing season the strongest shoot from it should be selected and firmly tied to the stake. In tying to stake use nothing smaller than a 3-ply baling rope. Anything smaller than this, should the shoot grow vigorously, will cut it in two. On low and medium standards rub all the laterals off, starting not closer than ten inches from the surface of the ground, and on the others anything below fourteen inches should be rubbed off. It is of the utmost importance to have the stem of the vine tied firmly to the stake to have it as straight as possible for it will ultimately form the body of the vine. In the second winter when pruning the low standard, leave at least four spurs, getting them as evenly distributed as possible, and be sure to have one at the tip end of the vine. The medium standard should have at least six



One-Year-Old Muscat
Trained to Single Cane
Cut Back to 24 Inches.



A Two-Year-Old Muscat Vine
with Spurs Properly Distributed
Along Cane.



A Three-Year-Old Muscat
Vine Well Trained.

CARE AND PRUNING THE VINE

Specific rules for cultivation and irrigation cannot be laid down, for this work is dependent on soil conditions, water, rainfall, etc. It goes without saying that thorough cultivation and careful attention to keep the vines in an active state of growth during the growing season will be amply repaid when the vineyard reaches its bearing age.

The training of the vine should be given careful attention the first year of its growth. In order that the plant may not form a head close to the top of the ground a short stake allowing it to be a foot above the ground should be driven beside each vine. These stakes should be one inch square and two feet long, as they should be taken out the first winter. Any cheap stake, provided it will support the growth of the vine, will answer. In July, before the growth of the canes has become lignified, they should be tied with three or four-ply baling rope to the stake, and about one-third of the top growth cut off. This shortening in of the canes causes them to become stocky, and as a result of the tying up there are a number of straight shoots, the strongest of which may be selected the following winter, the others being removed.

The most serviceable permanent stakes are the split stakes made out of coast redwood. These stakes should at least be

and the high vine not less than eight. None of these spurs should exceed five inches in length. A light crop of grapes may be expected from the vines in the second year, by this method of handling. In the third winter each one of these spurs will have several canes and in the case of the low and medium standard vines which ordinarily would not be trellised, two spurs with not more than three eyes in each should be allowed to remain. In succeeding years these eyes from the original stock may be increased, depending on the growth of the vine. In the third year the trellising of high standard should commence, when this is done one cane and one short spur with three eyes or buds should be allowed to grow from the stock of the preceding year. The object of this is to furnish wood for renewing the cane in the fourth year, for the first one will be cut off close to the original stock. This method permits of the renewal of the bearing wood of the vine annually and promotes its vigor. There are several advantages in this method of pruning: One is, that the vines eventually become self-supporting, making an immense saving in stakes, when after a number of years they must be renewed. There is a tendency on the part of all vines, as they grow old to have large spurs die. When the vines are trimmed to a head—say 12 inches from the ground, it very frequently happens that decay sets in, where the heavy saw cuts are made



Three-Year-Old Thompson Seedless Vines Pruned and Unpruned—Trellised.

in removing the old spurs and the vine either dies prematurely or there is such a slow renewal of new wood that it becomes unprofitable.

For trellising, use a 12 gauge wire and either staple it to the stakes, using a medium sized staple, or bore holes through the stakes and pass the wire through. To prevent the wires from becoming slack the end stakes in each row are braced, the braces being of sufficient length to reach from the top of the inside stake to the base of the stake on the next row. At three years old a trellised vine should not have more than four canes. This may in later years be increased, but eight should be the outside limit.

A great saving can be made in tying up vines or canes for that matter to the stakes by stripping off the leaves from the California Fan Palm and using these strips in place of rope. These palm leaf strips are not only very strong but are also very durable. The leaves should be cut two weeks in advance of using and exposed to the weather to cure before tearing them into strips.

In trellising, the cultivation of the vineyard is somewhat more expensive, as it only permits working the rows one way so that the center between the rows must be worked out with a horse hoe. It has been found that by trellising, the harvesting of the crop is facilitated, the bunches are more evenly distributed, the vines produce larger crops and in addition to this there seems to be less danger from damage by early Spring frosts.

RESISTANT VINES

The ravages of the phylloxera in the grape regions of France and the practical extermination of the French vineyards through this dreaded pest are too well known to require repetition here. Today France is producing more wine than she did in her palmiest days, prior to the time this pest was introduced. This wonderful change has been brought about by the grafting of the table, raisin and wine varieties, all of which are natives of Europe belonging to the *Vitis Vinifera* class, and none of which, no matter how strong they are, but will finally perish when attacked by the phylloxera.

The resistant sorts were originally wild American grapes, natives of the Mississippi Valley. These were taken in hand by the French viticulturists, improved by hybridization and selection, until today a large number of sorts adapted to a variety of soils and locations have come into general use.

The destruction of vinifera vines is due to the roots rotting whenever the insect makes a puncture, causing the vine to perish in time. In the roots of the resistants, although subject to these attacks, the punctures do not extend deeper than the bark of the rootlets, and as this is sloughed off each year, the roots are left as healthy as before. The grapes of the resistants are worthless; they simply serve as a stock for the more valuable foreign varieties of wine, table and raisin grapes, all of which succumb to the attacks of the phylloxera on their own roots. The cultural directions already given for planting vines on their own roots may be applied to the resistants in so far as preparing the vines for planting. In planting the rootings, the vines should be set so the union of the stock is at least an inch above ground. As soon as the vine is planted, cover it with soil, leaving only the top bud exposed. When the vines have a good strong growth, clear the soil away from them and cut off any roots which may be started from the scion. This is one of the important points in bringing a resistant vineyard into bearing

for if these roots are not cut off the resistant roots dwindle away and the vine reverts back to its own root. Suckers starting from the resistant cutting should also be removed.

It is necessary to follow up this root pruning for at least five years after the vineyard is planted, for the scion will invariably start out new roots if the soil from plowing gets banked up against it. In later years, after the wood of the vine becomes well hardened up, there is very little danger of the scion making roots. The same recommendations for training and pruning vines on their own roots may be followed with grafted vines.

Our stock of vines is very complete and are grown on new land, causing them to have a fine, vigorous root system.

Located in the heart of the grape-growing section of California, our nurseries have produced millions of the vines now bearing the enormous tonnage of grapes harvested each year. We shall continue to grow and sell the high quality, fine rooted vines, for which we have established a reputation in the past.

The vines will be supplied as follows: 500 at the 1,000 rate, where this rate is quoted, in not less than 50 of any one variety; 50 at the 100 rate, in not less than 10 of a variety. In small lots of one or two of a kind, the 10 rate will apply, except in quantities of less than five vines, when the single rate will be charged.

Grapes—Prices and Varieties Foreign Table Grapes of Very Recent Introduction

	EACH	10	100
Price.....	\$0 50	\$4 00	\$30 00

Except Maraville de Malaga

A few years ago we introduced a number of new varieties of grapes from France. It is only recently that we have observed these varieties sufficiently to feel at liberty to offer them for sale. They have been carefully tested in our trial grounds and their value has been fully determined. Our descriptions and recommendations are made from actual observation for several years.

Black Monukka. A black seedless grape, similar in size and quality to the well-known Thompson Seedless but $\frac{1}{2}$ larger, very firm, excellent shipping grape. Bunches loose; berries deep black and of even size. Extra fine quality. Introduced from India. August.

***Gros Guillaume.** Among the grapes of recent introduction this of the black type is the show fruit of them all. Bunches are of medium size, but berries are as large as Damson Plums, with a coloring when used for table decoration that makes them look as if molded in wax. Flavor the very best. Ripe in early September, but keep well until the middle of October. Enormous producers. Vines should be cane-pruned. Suitable for trellising.



Note the Splendid Crop of Muscat Grapes and Their Distribution on this Three-Year-Old Vine Pruned Along the Lines Recommended.



A Twelve-Year-Old Thompson Seedless Vine Showing the Results Obtained by the Single Cane Method of Pruning. This Vineyard of Four Acres in 1917 Produced 73 Tons of Grapes.

•**Ohanes d'Almeria.** Bunch above average. Berries are a beautiful golden color; fine flavor; good shipper. This variety is imported from Spain in cork dust. November.

•**Olivette de Vendemian.** This grape bears a very close resemblance to the Almeria so extensively exported from Spain, packed in cork dust, with several important exceptions. Vine stronger grower; bunches and berries larger. In every way a better grape and somewhat earlier in ripening. October.

Piment. Introduced by Mr. Roeding in 1901. The vine is identical with the Flame Tokay, the grape apparently is of that variety. On closer investigation, although it is the same in color, the bunches are long and loose; the berries are decidedly oval and are very much larger. Its time of ripening is the same. When better known it will displace the Flame Tokay entirely. It is worthy of trial.

Roeding's Improved Thompson Seedless. This is a sport of the well-known Thompson Seedless. Berries are twice as large. The vine is a very strong grower, but the canes are heavier and more closely jointed. The leaves are identical with the parent with the exception that they have much heavier texture. We have propagated this variety for several years and know it comes true to the type. It is worthy of a trial and we can recommend it particularly as an arbor grape. Ripens earlier than Thompson Seedless but so far does not bear as heavy; equally as good. Watery.

Maraville de Malaga. It is no exaggeration to say that this Grape with its remarkable coloring of deep red intermingled with blue, as it reaches maturity, with its firmness, unusual delicious flavor, excellent keeping qualities, will always command a position which will be accorded to comparatively few of the late grapes. Bunches long and loose, berries large conical, oval. October.

	EACH	10	100
Prices.....	\$0 35	\$3 00	\$7 50

General Collection

Foreign Grapes

For Table and Shipping

	EACH	10	100
Prices.....	\$0 30	\$2 50	\$10 00

•**Almeria.** Bunches large; berries medium. Ripens with Emperor and greatly valued as a late white shipping grape, especially for packing in redwood sawdust in drums. Vine vigorous. November.

•**Black Cornichon (Red Cornichon.)** Bunches long, berries long; skin thick and dark; flesh firm, good flavor; good shipper. October.

•**Black Hamburg (Frankenthal.)** Large; round; coal-black; flesh sweet and juicy. The famous English table grape. An immense bearer. Late September.

•**Black Morocco.** Very large; black; flesh firm, juicy, sweet and crackling. November.

Chasselas de Fontainebleau (White Sweetwater.) Medium size; round; greenish yellow; pulp juicy, sweet. Late July.

Chasselas Golden. The berries are amber color, sweet and juicy and of excellent flavor. Superior to all of the Chasselas type. Bunches are medium size, compact. August.

Chasselas Rose. Bunches long, cylindrical, berries small. Similar to Chasselas de Fontainebleau except that the berries are clear rosy red and of better flavor. August.

•**Dattier de Beyrouth (Rosaki).** Introduced from Europe. Bunches large, only slightly shouldered; berries loose, never compact. Berries very large; quite oval in form, of a beautiful golden amber and covered with a whitish bloom; very fleshy; juicy and sweet, with little or no acidity. Its keeping qualities are unsurpassed. Makes a very fine raisin. August.

•**Emperor.** Large; oblong; deep rose; one of the most profitable market grapes. Withstands rain better than any other variety. Vine strong grower, heavy bearer. November.

•**Flame Tokay.** Large; pale red, covered with bloom; flesh firm, sweet. Commands a good price in Eastern markets. September.

•**Golden Champion.** Golden yellow; large; round; flesh juicy; a fine table grape. August.

•**Gros Colman.** As large as Damson Plums; skin thin; dark; covered with bloom; flesh firm, with a pleasant vinous flavor. November.

Lady Finger (Pizutella di Roma). Bunches are usually large and long; berries are long, white and thin-skinned. Flesh tender, crisp and sweet. Vine a rapid and strong grower, bearing very large foliage.

•**Malaga.** Very large; oval; yellowish green; fleshy; one of the best shipping grapes. Immensely productive, thriving in almost any soil. Makes good second-quality raisin. August.

Muscat Hamburg (Black Muscat). The bunches are large, berries medium in size, roundish. Skin thin and dark reddish purple color. Pulp juicy.

Rose of Peru. Large; fruit round; highly esteemed as a market variety. October.

Foreign Wine Grapes

	EACH	10	100	1000
Prices.....	\$0 30	\$2 00	\$5 00	\$40 00

***Aramon.** Red; bunches and berries large. Bears heavier crops than any other grape; on mature vines averages 12 tons to acre. Very strong grower. September.

***Burger.** Produces a light, white wine of excellent quality. September.

***Carignan.** Medium, slightly oblong; makes a superior type of red wine. Vine a fine grower and abundant bearer. September.

***Feher Zagos.** Very productive in sandy soils; greenish; a valuable sherry grape. A good grape for interior valleys. September.

***Grenache.** Heavy producer in the interior; makes an excellent claret. Always in good demand at the wineries. September.

***Mission.** Berries medium, round, purple-black, sweet and delicious. September.

***Petit Syrah (Serine).** Medium; black; one of the best of the claret types. September.

Raisin Grapes

	EACH	10	100	1000
Prices.....	\$0 30	\$2 00	\$5 00	\$45 00

Except Sultanina-Rosea and Zante Currants.

***Muscat.** The variety so extensively planted for raisins. Fine for table and wine. September.

***Sultana.** Small; amber colored; seedless; makes fine seedless raisins. August.

***Thompson's Seedless (Sultanina Blanche).** Very large; greenish yellow; firm; oval, seedless; prized for shipping and raisins. August.

***Sultanina Rosea.** Identical with the well-known Thompson Seedless in everything except color. The berries are oval; medium in size and vary in color from a violet-rose to a deep coppery red; loose in cluster. Early August.

	EACH	10	100
Price.....	\$0 25	\$2 50	\$10 00



Zante Currant



One of the Same Vines, the Following Season, Loaded With Fruit Showing the Results Obtained by the Single Cane Method of Pruning. See Cut on Page 38.

***Zante Currant (Black Corinth).** Bunches medium; berries small, seedless; skin thin; black; blue bloom. This is the variety producing the currant of commerce, under the name "Zante Currant," of which there are imported into the U. S. annually from Greece over 1,000,000 lbs.

This offers a great opportunity for the planters of the interior valleys where this variety has been thoroughly tested and found adapted to our conditions. August.

	EACH	10	100
Prices.....	\$0 30	\$2 50	\$12 50

American Grapes

It is sometimes said that American Grapes do not bear well in California. This statement is not in keeping with the facts for they do bear most abundantly when properly taken care of. They are especially desirable for arbors and to run over unsightly out houses. Should be planted much more largely than they have been. We list the very best in black, white and red varieties. Our vines are grown in suitable soil producing vigorous vines with strong, well developed root systems.

	EACH	10	100
Price.....	\$0 40	\$3 00	

***Agawam.** One of the best red varieties; large; pulp tender; sweet. August.

***Catawba.** Coppery red, becoming purplish when well ripened; vinous and rich. September.

***Concord.** Bunch and berry very large; blueblack; sweet, pulpy, tender. August.

***Delaware.** Bunches small and very compact. Berries small, violet red and highly flavored. September.

***Isabella.** Berries black; oval; juicy, sweet, with distinct musky flavor. An immense bearer and valuable market variety. September.

***Moore's Early.** Very large; black, resembling Concord; ten days earlier. August.

***Niagara.** Pale yellow; flesh tender, sweet; one of the best whites. September.

***Pierce (Isabella Regia).** Of extraordinary size; exceedingly sweet. Leaves large. Originated by J. P. Pierce of Santa Clara and known in Southern California as the California Concord, which it resembles but is much larger. Cannot be surpassed by any of the American varieties. Late September.

Phylloxera-Resistant Grapes

These vines are all well established and have a fine root system. They can be bench-grafted and planted in vineyard form, or in nursery rows this season.

	10	100	1000
Price.....	\$2 50	\$5 00	\$40 00
Aramon X Rupestris Ganzin No. 1			
Lenoir			
Mourvedre X Rupestris 1202			
Riparia X Rupestris 3306			
Riparia X Rupestris 3309			
Rupestris St. George			



The Mammoth Blackberry (very much reduced). No Garden is Complete Without This Wholesome and Valuable Berry. Thrives Well in All Parts of the State.

This term usually applies to the berry family—Blackberries, Raspberries, Currants, Gooseberries, Strawberries, etc. The whole Pacific Slope, wherever fruit soils and sufficient moisture prevail, is adapted to their successful culture. In California there is almost a continuous growth, and intermittent cropping can be carried on almost during the entire year. Every family orchard should have a plot devoted to small fruits, and where the conditions are favorable near to markets they can be made immensely profitable when grown along commercial lines.

PREPARING THE GROUND

The preparation of the soil should be thorough. The roots being close to the top of the ground and of a small, rather fibrous nature, the importance of having the soil in the very best possible condition to insure a good stand of plants and a satisfactory growth must be apparent to anyone engaging in the culture of berry plants. Thorough dressing with well-rotted stable manure will do much to promote a vigorous growth the first season, and having secured this, profitable crops may be expected the second year after planting.

Berry culture cannot be successfully carried on in California without irrigation, so that before planting, the land should be graded, having the grade as uniform as possible so as to prevent flooding. A berry grower should be absolutely certain of water when it is required, and if there is any question about the supply from ditches, a pumping plant should be installed to have water available whenever it is needed. A delay of even a few days may mean the loss of the entire crop.

LOGAN, MAMMOTH AND HIMALAYA BLACKBERRIES

Are practically in a class by themselves, and the cultural directions for one apply to the other, so we will consider them under the same head. They should be planted in rows six feet apart and eight to ten feet between the rows. The best results are obtained by trellising the runners to wires on heavy posts which will hold the wire taut. As soon as the fruiting season is past the fruiting canes should be cut away and the new canes be bunched together and wound around the wire.



The Himalaya Blackberry Produces a Succession of Crops all Summer.

At least two wires should be strung on the posts, so that as soon as one wire is covered the remaining canes may be wound around the other. By following this method from year to year a heavy crop of large, fine berries may be looked for annually.

A novel method of handling them is to plant in squares 8x8 feet. Drive three stakes one and one-half feet into the ground, using 2x2 6-foot posts. Nail an old barrel hoop on the top of the posts, and another two feet from the top. The shoots are trained over these hoops. It is simply astonishing the amount of fruit which will be obtained by this method of handling. Another satisfactory plan is to set 4x6, 7-foot posts twenty feet apart and nail 2x2, 18-inch cross ties to each post. Set the posts three feet in the ground and string No. 12 galvanized wire on the cross ties, holding it in place with staples. The new shoots should be trained across, winding them around the wires from one wire to the other.

LOGANBERRY

Fruit is 1¼ inch long, dark red; as large as the largest blackberry and partakes of the flavor of both the blackberry and raspberry; excellent for table, eaten raw or stewed; makes a fine jelly or jam. Ripe in May.

	EACH	10	100
Tips.....	\$0 25	\$2 00	\$15 00

MAMMOTH BLACKBERRY

Supposed to be a cross between the wild blackberry of California and the Crandall's Early. Deep red; enormously productive and exceedingly early; fruit enormous size.

	EACH	10	100
Tips.....	\$0 25	\$2 00	\$15 00

HIMALAYA BLACKBERRY

Imported originally from the Himalaya Mountains. It is a remarkable grower, canes growing 40 feet in a single season; an enormous bearer, a good shipper; berry round; very few seeds and with almost no core. June to late fall.

	EACH	10	100
Tips.....	\$0 25	\$2 00	\$15 00

THE DEWBERRY

The improved varieties of Dewberry or trailing blackberry are very popular. They are enormous croppers, produce fruit of the very best quality, which ripens fully two weeks earlier than any of the blackberries. Plants should be set four feet apart, with rows six feet apart. When there is not sufficient rainfall to keep the vines in active growing condition, irrigation should be practiced. Immediately following the harvesting, all the old canes should be cut off, and the following spring the new ones should be trained to a wire two feet from the ground. The method of trellising is the same as for the other varieties of trailing vines, except that the canes are trained within two feet of the ground.

	EACH	10	100
Tips.....	\$0 25	\$2 00	\$15 00

*Gardena. Large; glossy black; delicious; heavy bearer. Middle of May.

Lucretia. Very large; glossy black; luscious. Dense foliage. May 1.

THE BLACKBERRY AND RASPBERRY

The most satisfactory way of handling blackberries is to plant in rows six feet apart, with eight feet between the rows. The first season all the shoots which have attained a height of two feet should be shortened into twenty inches. This will cause them to send out many lateral shoots, so that instead of having the fruiting shoots confined to a few canes, there will be a number of lateral shoots from each of the main canes for producing fruit clusters. These laterals should have one-half of their growth cut off in the winter months. In the second year, as soon as the season's crop has been harvested, cut away the fruiting wood, so that all the energy of the plant will be forced into the new growth. The young shoots should again be cut back at the proper height to develop laterals, and these, as has already been directed, should be cut back in the winter months. This method of pruning has other advantages by making the canes sturdy and self-supporting, and causes the fruit to be distributed over the entire plant instead of being confined to the terminal growth.

By having the rows eight feet apart, cultivation can be carried on with a horse, a very important point. A good supply of water, thorough cultivation and liberal application of rotted barnyard manure are important factors in the cultivation of the blackberry.

BLACKBERRY

	EACH	10	100
Tips.....	\$0 25	\$2 00	\$15 00

Crandall Early. Everbearing, large and fine. Very early. One of the best.

Lawton. Large; ripens late; very productive. Thoroughly tested and well-known. A dependable variety.

RASPBERRY

	EACH	10	100
Tips.....	\$0 25	\$2 00	\$15 00

Except Superlative.

*Cuthbert. Large; rich crimson; good shipper.

Kansas. Standard blackcap; productive and hardy; seeds large; best shipper.

*Superlative. New. Large; red; conical; very fine flavor; ships well. A great improvement over all other varieties of raspberries. It is a continual bearer; bears fruit throughout the summer on the young shoots; deserves a wider planting.

	EACH	10	100
Tips.....	\$0 30	\$2 50	\$20 00



Superlative Raspberry.



Perfection Currant.

CURRENT AND GOOSEBERRY

Are usually planted in rows five feet apart; the plants standing three feet apart in the rows. They will not thrive in the hot interior valleys, being subject to sunburn. It is only practical to grow them in the coast counties; they attain perfection when they get the benefit of the cool, moist air from the ocean.

Prune in winter, thinning out the new shoots when they are too thick, and remove the old unfruitful wood. Thorough cultivation, but not deep, is at all times advisable.

Currants

	EACH	10	100
General Collection	\$0 30	\$2 50	\$20 00
Except Perfection and Pomona.			

Cherry. Very large; deep red.

Fertile De Palluau. A vigorous, upright grower, bunches long; berries bright red; moderately juicy; very productive; adapted to the hot interior localities, where other varieties suffer from the sun.

White Grape. Large; yellowish white.

Pomona. Late introduction. One of the best. Very arge; berries red and bunches well filled.

Perfection. New. Large, bright red; rich sub-acid flavor; plenty of pulp and few seeds. A very heavy bearer.

	EACH	10
1 year	\$0 40	\$3 00

Gooseberries

In the mountains at an elevation of 3,000 feet, and anywhere in the coast regions, the gooseberry thrives and produces an abundance of fruit.

	EACH	10	100
Price	\$0 40	\$3 50	\$25 00

Houghton. A vigorous grower; fruit medium size, roundish inclining to oval; skin smooth, pale red; flesh tender, sweet and good; entirely free from mildew.

Oregon Champion. Very large; brownish red.

THE STRAWBERRY

Strawberries bear almost the entire year in several of the coast counties, and the same may be said of the plants in the interior valleys, where they are properly mulched and irrigated. In laying off ground for strawberries, the first essential point is to grade the plot so it has a gradual fall, so that no part of the rows will become submerged in irrigating. There are a number of methods for laying out strawberry beds, but the one mostly followed by commercial growers is to plant in rows, hilled up and about two feet apart, with a ditch between for irrigating. Set the plants eighteen inches apart in the rows. The best time to set the plants is late in the fall after a heavy rain or any time in January or February. It is very important during the fruiting season to keep the plants in an active state of growth by irrigating, weeding and cultivating. In order to obtain large, highly flavored fruit, pinch off the runners as fast as they appear, and this will cause the plants to stock out as it were, on which the very finest strawberries may be expected the following season.

It is advisable to divide the bed into checks or divisions, not to exceed 100 feet and have the same almost on a dead level. This is very important, for when irrigating the water stands on the same level throughout the row and prevents damage to the berries and plants alike.

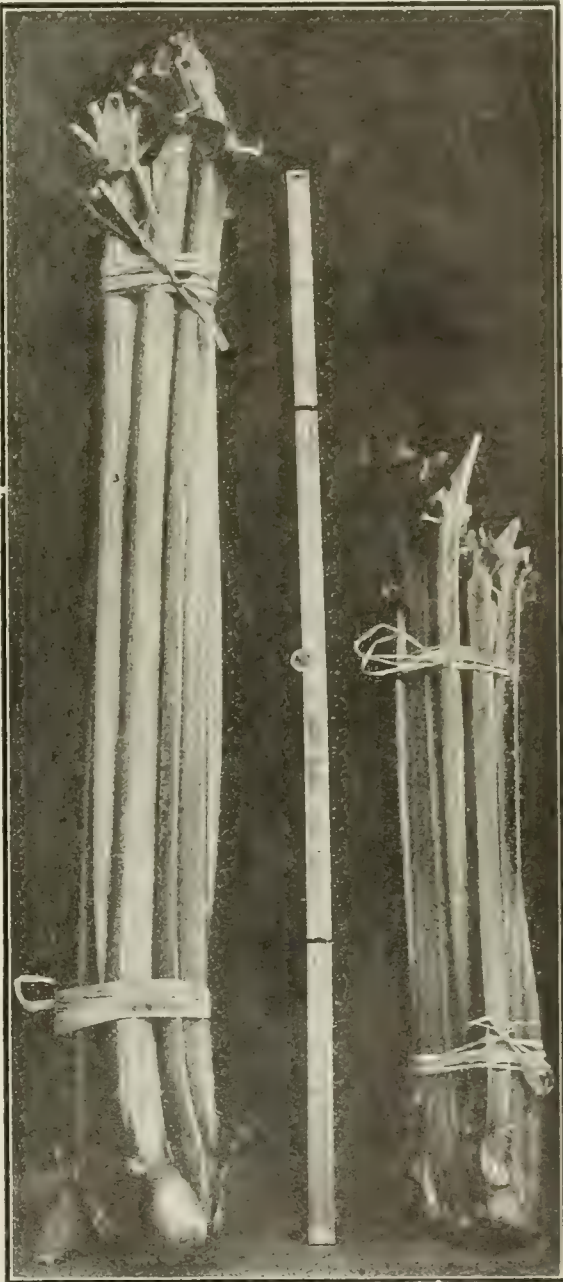
	10	100	1000
Plants	\$0 40	\$2 50	\$15 00

- Brandywine. Large; roundish; conical; flesh firm; a valuable medium to late variety
- Dollar. The popular berry of the Florin and Watsonville districts. Staminate, exceedingly prolific. Berries good size dark-red color
- Marshall. Very large; dark rich crimson; quality good; late

One of the Late Introductions
THE BANNER STRAWBERRY

The strawberry that is desired by the commercial grower and fruit shipper is one of medium to large size, an even and abundant bearer, of good color and texture, sweetly acidulous and melting to the sense of taste, and of robust growth and vitality. All of these characteristics are pronounced in the Banner strawberry, rendering it alike desirable for the home grower and the market gardener; it is a variety that we can heartily recommend.

	10	100	1000
Price	\$0 60	\$5 00	\$25 00



Niles Giant
Rhubarb

Crimson Winter
Rhubarb

Vegetable and Esculent Roots



There is Big Money in Hogs. Then Why not Plant the Jerusalem Artichoke? The Great Fattener during the Winter Months. The Hogs do their Own Harvesting.

ARTICHOKE

Globe. The variety so much prized by epicures and which is so extensively grown in California, particularly in the suburbs of San Francisco where it produces from early winter and practically through the entire summer, is the Globe Artichoke (*Cynara scolymus*). It is a gross feeder and must be well manured. In the interior sections of the State its flower buds do not appear until late spring. The plant presents a very tropical appearance, and is therefore a valuable addition to any garden. The flower buds should be cut off as soon as they are well formed and before the scales open, otherwise they are tough and tasteless. Never allow the flowers to mature as the plants will dwindle down and die. Suckers should be taken during the winter months and planted in rows three feet apart, six feet between the rows. Experience has demonstrated that the best quality of artichokes is produced by cutting the plants down during the month of July, thus stimulating the growth, causing them to produce an abundance of flower buds during the winter and spring months. San Francisco County is the great artichoke center of California; shipments annually aggregating 500 carloads from this point.

	EACH	10
Plants.....	\$0 25	\$2 00

JERUSALEM ARTICHOKE

Jerusalem Artichoke. (*Helianthus tuberosus*). Radically different in its character of growth from the preceding, and will thrive on any well drained soil. The tubers should be cut to single eyes and planted in rows eighteen inches apart with rows four feet apart. The method of cultivation and hilling is practically the same as for potatoes. The tubers are not mature until the tops are frozen when they may be dug up and used for hog feed, or the animals may be turned loose to feed and root them out themselves. They produce enormously on good soil; with liberal cultivation and moderate irrigation, fifteen to twenty tons to the acre. This vegetable is highly prized by the French people, and in New Orleans, where it is extensively grown, it is prepared for table use by stewing, for making soups and as a salad. For the farmers of California it possesses so much merit that no farm having a few hogs should be without a patch of these tubers, which will supply feed during the winter months when all other foods are scarce and high.

White. Resembles a potato more than an artichoke, having shallower eyes, much smoother skin than the preceding.

	5 lbs.	100 lbs.
Tubers.....	\$1 50	\$10 00

ASPARAGUS

	10	100
Roots.....	\$0 75	\$3 00

Conover's Colossal. A standard kind of first quality; tender and highly flavored.

Palmetto. A valuable variety, producing enormous and delicious sprouts.

RHUBARB

Niles Giant. Originated at Niles, California. It produces the largest and best stalks of any variety on the market. It is a rapid grower and heavy producer. Stalks are crisp and juicy with a delicious flavor.

	EACH	10
Price.....	\$0 75	\$6 00

Burbanks Crimson Winter. A vigorous grower producing medium sized stalks of good length during the entire winter. They are of a pale greenish crimson color and turn crimson when cooked. Adapted to the long seasons of California.

	EACH	10
Price.....	\$0 40	\$3 00

Myatt's Linnaeus. Large; early; tender and fine.

	EACH	10
Roots.....	\$0 30	\$2 00

HOP ROOT

Climbing vines valuable for ornament and yielding the hops used by brewers. The male plant is not necessary except where the hop is planted commercially.

	EACH	
Male.....	\$0 25	
Female.....		25

Ornamental Department

No country in the world offers better natural advantages for the grower of ornamental trees and shrubs than California. With a variety of climates embraced in a limited area from the torrid heat of the Colorado Desert to the balmy and equable climate of the southern coast counties, thence extending to the far northern counties, with their abundant supply of rainfall during the winter months, and where the temperature never goes above 70 degrees F., conditions prevail in which nearly every variety of tree or plant from the temperate, subtropical and tropical zones finds surroundings and soils conducive to successful culture.

California people are lovers of trees and are becoming impressed with the advantages which nature has bestowed upon them so bountifully, hence there is a study and increasing demand for the very best that can be obtained in ornamental stock.

All varieties of deciduous trees should be planted in the dormant season from January to April, just as soon as sufficient rain has fallen to soften up the ground so that large enough holes can be dug to receive the roots readily. Evergreens transplant best from February to May, and in localities where there are no great extremes of heat during the summer months, planting may be done as late as June. Palms can be safely transplanted from September until June of the following year, but to successfully grow them during the winter months, they should never be dug fresh out of the ground from December to February, as they are dormant at that season of the year and will invariably "go back." For customers who desire an assorted order including palms, shipped in the winter months, we dig them in the fall of the year and store them in our palm house. By handling them in this manner they can be safely transplanted during the months of inactivity.

The nativity is given as nearly as known but in some instances this can be given only in a general way. Space will not permit us to give more than a very brief description of ornamentals in this catalogue. Further descriptions will be supplied upon request. We shall be pleased to quote special prices on larger grades of deciduous trees than those quoted in this list. Before shipping these large trees, we invariably cut them back to 10 feet and shorten in the side branches for the purpose of saving freight charges. When these trees are planted, cut them down to within 8 feet of the ground, shortening lateral branches, to six inches from the stem of the tree and thin out if too many.

ACER (Maple). Valuable trees for street and park planting.

	EACH		
	10	100	
8 to 10 ft.....	\$1 25	\$10 00	\$80 00
6 to 8 ft.....	1 00	8 00	60 00

A. dasycarpum (Silver or Soft Maple), Eastern N. America. A large tree of rapid growth; foliage bright green above, silvery beneath. A favorite for streets and parks; grows well in interior valleys.

A. negundo (Ash Leaved, Maple or Box Elder), California. A fine, rapid-growing avenue tree; withstands both cold and drought.

A. platanoides (Norway Maple). Large and handsome; deep green foliage and compact growth. A valuable tree for interior valleys.

BETULA ALBA (European White Birch). A rapid-growing tree with silvery white bark and slender, drooping branches. Thrives in poor soils.

	EACH	
	10	
8 to 10 ft.....	\$1 25	\$10 00
6 to 8 ft.....	1 00	7 50

CATALPA (Catalpa). Highly ornamental trees with large, bright green heart-shaped leaves and beautiful white or yellowish flowers in large, showy clusters, followed by long, slender seed pods. The wood is very durable in the soil, and valued for fence posts and railway ties. They are tropical looking trees and adapt themselves to almost any soil.

	EACH	
	10	
8 to 10 ft.....	\$1 00	
6 to 8 ft.....	75	\$6 00

C. bignonioides (Common Catalpa), South U. S. A rapid-growing, spreading, irregular tree, with large, heart-shaped leaves; flowers fragrant, white and purple, hanging clusters.

C. speciosum (Western Catalpa). Eastern U. S. Rapid growers; most desirable where quick effects are desired.

C. bungei (Chinese). A remarkable species, forming a dense, round, umbrella-like head. Makes a beautiful tree when grafted or budded on a high stem; extensively used in formal gardening.

	EACH	
	10	
6 to 8 ft.....	\$2 50	

CELTIS OCCIDENTALIS (Hackberry—American Nettle Tree). A rare tree of large growth, with numerous slender branches; thick, rough bark; apple-like foliage; produces a small edible berry of an orange-red color, when ripe. A desirable tree for street planting. Does splendidly in the San Joaquin Valley.

	EACH	
	10	
8 to 10 ft.....	\$1 25	\$10 00
6 to 8 ft.....	1 00	7 50

CERCIS (Judas Tree). Striking ornamental trees, loaded with a mass of pea-shaped, pink blossoms in early spring, before the leaves appear. Pods remain all summer; very ornamental.

	EACH	
	10	
6 to 8 ft.....	\$1 50	\$12 50
4 to 6 ft.....	1 25	10 00

C. Canadensis (American or Red Bud Judas Tree). United States. A medium-sized tree with perfect heart-shaped leaves. It derives its name of Red Bud from the profusion of delicate, reddish-purple flowers with which it is covered in the early spring before the foliage appears; a very fine ornamental tree; thrives well in this valley.

C. siliquastrum rubrum (European Judas Tree). A very ornamental tree on account of its profusion of blossoms, which appear before the leaves in the spring. Flowers are red.

CRATAEGUS (Thorn). Europe. Grows in almost any soil; abundant flowers in spring, are followed by showy fruits in fall.

	EACH	
	10	
Except C. cordata (Washington).		
6 to 8 ft.....	\$1 00	\$7 50

C. oxyacantha alba plena (Double White Thorn). Small, double, white flowers and lustrous green leaves.

C. oxyacantha paulii (Paul's Double Scarlet Thorn). Small tree, with spreading branches. Flowers of a deep crimson.

C. cordata (Washington). Eastern U. S. Leaves triangular lobed, deep, glossy green, and in the fall assume beautiful autumnal tints. Flowers white, followed by small, glossy, intensely red berries.

	EACH	
	10	
4 to 6 ft.....	\$1 00	



Acer platanoides—Norway Maple.
Handsome Compact Growing Park or Street Tree.

FRAXINUS AMERICANA (American White Ash). Magnificent avenue tree, with broad, round head and dense, bluish-green foliage.

	EACH	
	10	
8 to 10 ft.....	\$1 25	\$10 00
6 to 8 ft.....	1 00	7 50



Platanus orientalis.
European Sycamore—The Best Tree for Street and Avenue. Planted Along Highways in Many Counties.

GLEDITSCHIA TRIACANTHOS (Common Honey Locust). Eastern U. S. Very ornamental tree, with pinnate, glossy green foliage; greenish flowers and striking, bean-like pods in fall. Thrive well in all parts of California and deserve wide planting.

EACH	10
6 to 8 ft.	\$1 25

KOLREUTERIA PANICULATA (Varnish Tree). Japan. Small tree; glossy divided foliage; yellow flowers. Fine for lawns. Stands drought and heat well.

EACH	10
6 to 8 ft.	\$1 00

LIRODENDRON TULIPIFERA (Tulip Tree). Eastern U. S. A magnificent, rapid-growing tree of tall, pyramidal habit, with light-green, glossy, fiddle-shaped leaves, and, greenish, yellow-like flowers.

EACH	10
6 to 8 ft.	\$1 50 \$12 50

MELIA AZEDARACH UMBRACULIFORMIS (Texas Umbrella). S. Asia. One of the handsomest shade trees of umbrellar form; shade very dense; foliage dark green; produces lilac-colored flowers.

EACH	10
8 to 10 ft.	\$2 00
6 to 8 ft.	1 50 \$12 50
5 to 6 ft.	1 25 10 00

MORUS (Mulberry). Rapid, dense-growing trees; popular for planting in hog pastures and chicken yards. A few trees planted near a cherry orchard is advisable as the birds will eat them in preference to the cherries.

M. multicaulis (Chinese Mulberry). Strong growing tree. Planted principally for silkworm culture.

EACH	10
6 to 8 ft.	\$1 00 \$7 50

M. nigra (Persian Mulberry). A slow growing variety. Produces largest and finest fruit of all mulberries. Fruit black, 1½ inches long, aromatic, with sub-acid flavor. Ripens June to October.

EACH	10
10 to 12 ft.	\$2 00 \$15 00
8 to 10 ft.	1 50 12 50
6 to 8 ft.	1 25 10 00

PERSICA (Flowering Peach). They blossom in April, and the branches are covered with a mass of beautiful colored flowers, long before the leaves appear.

EACH	10
4 to 6 ft.	\$1 25 \$10 00
3 to 4 ft.	1 00 7 50

P. alba plena (Double White Peach). Flower large, double, pure white.

P. rosea plena (Double Rose Peach). Flower double, fringed and rose-colored.

PLATANUS (Sycamore). Plane tree. In great demand for shade and avenue planting; a rapid, symmetrical grower, thriving in almost any soil. Planted largely along California highways.

EACH	10	100
12 to 15 ft.	\$2 00 \$17 50	
10 to 12 ft.	1 75 15 00	\$125 00
8 to 10 ft.	1 50 12 50	100 00
6 to 8 ft.	1 25 10 00	80 00

P. occidentalis (American Sycamore). American Plane or Buttonwood. A well-known, spreading tree. Common throughout the United States.

P. orientalis (European Sycamore). Erect-growing tree, with bright green foliage and beautifully mottled trunk. Regarded as one of the best street trees for California.

POPULUS (Poplar). Poplars are very rapid-growing trees and thrive under a great variety of conditions. Their leaves are bright among other trees of heavier foliage. They are well adapted for streets, avenues and windbreaks. Where quick shade is desired these trees serve the purpose. They do not bear the objectionable cottony seed.

EACH	10	100
8 to 10 ft.	1 00 \$7 50	
6 to 8 ft.	75 6 00	\$50 00
4 to 6 ft.	60 5 00	40 00

P. aurea van geerti (Golden Poplar). Has fine golden-yellow foliage.

P. balsamifera candicans (Balm of Gilead Poplar). N. America. A handsome, tall tree, with spreading branches. Most popular variety for shade and avenue planting.

P. deltoides carolinensis (Carolina Poplar). Europe. Very rapid grower. Valuable for avenue planting.

P. fremontii (Cottonwood Poplar). California. Very rapid growing tree with a spreading head. A splendid tree for quick shade.

P. nigra italica (Lombardy Poplar). Erect-growing tree, with a tall, spiry-like form.

PRUNUS VESUVIUS. (Purple Leaf Foliage Plum). A foliage tree like the Purple-Leaved Plum but vastly superior to it. A much more vigorous grower; branches inclined to droop; foliage very large, with a very much crumpled surface with a pronounced crimson color intermingled with a lustrous green.

EACH	10
6 to 8 ft.	\$1 50 \$12 50
4 to 6 ft.	1 25 10 00

PTEROCARYA STENOPTERA. (False Walnut). Western Asia. An exceedingly handsome tree with spreading branches, leaves rich, dark green, consisting of 11 to 15 leaflets. Fruits light green, drooping in graceful racemes 12 to 15 inches long. A most interesting tree.

EACH	10
6 to 8 ft.	\$1 00 \$7 50
4 to 6 ft.	75 6 00



Populus balsamifera candicans.
Balm of Gilead Poplar—Rapid Growing Street Tree.

QUERCUS RUBRA (American Red Oak). An American species of large size and rapid growth; leaves 7 to 9 lobed, the divisions bearing bristle-tipped teeth, rosy-pink at unfolding, dark dull green at maturity, turning orange and brown in autumn; acorns very large. A grand specimen or street tree and one of the most rapid-growing oaks. EACH 10
4 to 6 ft. \$1 00

ROBINIA PSEUDACACIA (Locust). Eastern U. S. Adapt themselves to almost any soil conditions. Wood of the larger growing varieties is very hard and durable; valuable for posts and railroad ties. Varieties bloom from early spring till summer. EACH 10
6 to 8 ft. \$1 50 \$12 50

R. P. bessoniana (Umbrella Locust). The most ornamental locust, with compact, round head, making a fine shade tree; nearly thornless. EACH 10
6 to 8 ft. \$1 50 \$12 50

R. P. decalaneana (Pink Flowering Locust). A vigorous straggling grower with pink flowers, very ornamental. EACH 10
10 to 12 ft. \$2 00 \$15 00
8 to 10 ft. 1 50 12 50

R. pseudacacia nigra (Black Locust). A good timber tree of very rapid growth. Flowers white. EACH 10
10 to 12 ft. \$1 25 \$10 00
8 to 10 ft. 1 00 7 50



Melia—Texas Umbrella. A Well-known Tree of Striking Beauty.

SOPHORA JAPONICA (Pagoda Tree). A rare tree with dark green, compound leaves and creamy yellow pea-shaped flowers. Thrives well in interior valleys. Flowers all summer—valuable where bees are kept. EACH 10
6 to 8 ft. \$1 25 \$10 00
1 to 6 ft. 1 00 7 50

SORBUS AUCUPARIA (European Mountain Ash or Rowan Tree). A fine tree, with dense and regular head covered from July to winter with great clusters of bright scarlet berries. EACH 10
10 to 12 ft. \$2 00 \$17 50
8 to 10 ft. 1 50 12 50

TAXODIUM DISTICHUM (Bald Cypress). Southern U. S. A deciduous coniferous tree, of slender habit. Trunk straight and tapering. Foliage similar to Redwood. Does well in California. A fine avenue tree. Very desirable for high hedge. EACH 10
6 to 8 ft. \$1 25 \$10 00
1 to 6 ft. 1 00 7 50

TILIA AMERICANA (American Linden or Basswood). A rapid-growing, large-sized tree; forming a broad round-topped crown; leaves broadly oval, dark green above and pale green beneath; flowers creamy white and very fragrant. Suitable for avenues, lawns or parks. Ranks high as a source of honey for bees. Suitable for coast climate.

T. europaea (European Linden or Lime Tree). A very fine pyramidal tree, with symmetrical round-topped crown; leaves obliquely heart-shaped, bright green, fading in autumn to tones of yellow and brown; a handsome street or avenue tree. EACH 10
6 to 8 ft. \$1 00 \$7 50

ULMUS (Elm). Stand in the first rank among American trees; grow rapidly; are long-lived, of very graceful spreading habit and not over-particular as to soil. Our trees are all budded or grafted insuring uniformity of leaf form and habit, making them particularly desirable for avenues and for specimen planting. EACH 10
10 to 12 ft. \$1 50 \$12 50 \$100 00
8 to 10 ft. 1 25 10 00 75 00
6 to 8 ft. 1 00 7 50 60 00

U. americana (American White Elm). Eastern U. S. A magnificent large tree, with drooping, spreading branches. One of the grandest of our native forest trees; requires moist soils.

U. campestris argenteo variegata (Variegated Elm). Tree a rapid and erect grower. Large leaves, spotted with silver.

U. campestris aurea (Golden Elm). Foliage of a uniform bronzy gold color.

U. campestris latifolia (French Elm). An erect tree of rapid, compact growth, with dark green foliage. Very extensively used for avenue planting.

U. campestris monumentalis (Monumental Elm). Dwarf variety, forming a straight and dense column.

U. campestris suberosa (Cork Bark Elm). Very desirable for streets and avenues; young branches very corky.

U. scabra vegeta (Huntingdon Elm). Very erect habit; bark smooth; large leaves, one of the finest specimen and avenue trees. Especially suited for interior valleys.

WEeping DECIDUOUS TREES

The weeping trees stand in a class by themselves. They are particularly effective when standing as specimens on a lawn or when grouped along the outer edges of larger growing trees. They lend, so to say, a pleasing finish to a group of both evergreen and deciduous forest trees. They are budded or grafted on straight stems of the same species at a height of six to eight feet from the ground. To bring out their best points and make them show off to the most advantage, it is very important to prune them regularly every winter. A systematic thinning out of the branches which crowd and interfere, and by careful attention to the shortening in of the extending limbs, and cutting to an upper limb or bud, will do more than anything else to give to the trees an arbor-like appearance. Nothing is more unsightly than to allow a thick mass of weak, spindling branches, requiring a wooden framework underneath, to bring out the weeping effect. A properly pruned weeping tree is self-supporting, and one with a perfect umbrella-like form, with the pendulous branches almost touching the ground, is sure to excite the admiration of the plant lover. They are budded or grafted on straight stems of the same species at a height of 6 to 8 feet from the ground.

WEeping DECIDUOUS TREES

- BETULA ALBA PENDULA LACINIATA** (Cut-leaved Weeping Birch). A charming tree with deeply lacinated foliage. Its tall, slender, yet vigorous growth, graceful, drooping branches, silvery white bark, and delicately-cut foliage present a combination of attractive characteristics rarely met with in one tree.
- | | |
|----------------|--------|
| | EACH |
| 6 to 8 ft..... | \$2 00 |
- CERASUS** (The Weeping Cherries). Few drooping trees are more graceful, and they are specially adapted to beautiful grounds, while as single specimens on the lawn they are unique and handsome. When loaded with flowers they are most interesting and attractive, their slender branches being devoid of foliage and covered with a mass of bloom.
- | | |
|----------------|--------|
| | EACH |
| 4 to 6 ft..... | \$3 00 |
- MORUS ALBA TATARICA PENDULA** (Tea's Weeping Mulberry). A very graceful weeping tree, with long, slender branches, drooping to the ground, parallel to the stem; one of the most graceful and vigorous of weeping trees.
- | | |
|----------------|--------|
| | EACH |
| 6 to 8 ft..... | \$3 00 |
- SALIX** (Willow). Most rapid-growing weeping tree, particularly adapted to moist locations.
- | | | |
|------------------|--------|---------|
| | EACH | 10 |
| 10 to 12 ft..... | \$1 50 | \$12 50 |
| 8 to 10 ft..... | 1 25 | 10 00 |
| 6 to 8 ft..... | 1 00 | 7 50 |
- S. babylonica** (Common Weeping Willow). Asia. The well-known Weeping Willow.
- S. babylonica dolorosa** (New American Willow). Large, glossy leaves and very pendulous habit.
- S. baron de solomon**. The most rapid growing of all Weeping Willows. Very recent introduction.
- S. viminalis** (Osier). Europe and Asia. A low-growing tree and valuable for basket material, and for tying. When used for this purpose the main body of the tree should not be over six feet high and cut to spurs every winter.
- S. vitellina aurea** (Golden Willow). N. E. America. A handsome tree, conspicuous at all seasons and particularly in the spring, when the branches are of a golden yellow. Becomes a very large and venerable tree.
- ULMUS SCABRA PENDULA** (Camperdown Weeping Elm). Vigorous branches, having a uniform weeping habit, overlapping very regularly and forming a roof-like head; the leaves are large, dark green and glossy, and cover the tree with a luxuriant mass of verdure.
- | | |
|--------------------------|--------|
| | EACH |
| 2 to 2½ in. Caliper..... | \$3 00 |



Morus Alba Tatarica Pendula. Weeping Mulberry.

DECIDUOUS SHRUBS

- The term "shrubbery" is usually applied to woody plants of comparatively small size. The line of distinction is difficult to draw, but a shrub has as a rule a number of stems springing from the ground while a tree has a single stem. Interspersed among larger trees, many varieties when in flower give life to a landscape effect. In grouping shrubs, have the taller growing kinds serve as a background to the lower growing kinds. The ultimate effect of the grouping should be to have a continuous mass of varying foliage. As a boundary or screen for dividing fields or hiding unsightly fences, or for a background for flower gardens, they are unsurpassed.
- BERBERIS VULGARIS** (Common Barberry). Europe. Handsome distinct foliage and yellow flowers, succeeded by red berries.
- | | | |
|----------------|--------|--------|
| | EACH | 10 |
| 3 to 4 ft..... | \$0 75 | \$6 00 |
| 2 to 3 ft..... | 60 | 5 00 |
- B. V. atropurpurea** (Purple Leaved Barberry). A pretty shrub with purple foliage.
- B. V. thunbergi** (Thunberg's Barberry). Low growing shrub, leaves small which color in the fall, berries bright red.
- CERASUS** (Flowering Cherry). This is a very ornamental family of shrubs or small trees. They are especially well adapted for beautifying small grounds. The beautiful tinting of the flowers combined with their very effective appearance pushing out long before the leaves appear, makes them particularly desirable as early spring flowering plants.
- | | |
|----------------|--------|
| | EACH |
| 4 to 6 ft..... | \$1 50 |
- C. japonica alba** (White Flowering Cherry). A fine sort, with double white flowers.
- C. ranunculiflora** (Rhexii). Similar to the above; flowers in immense clusters like roses; very double.
- CYDONIA** (Quince). Japan. The Japanese Quinces are beautiful dwarf species, remarkable for the brilliancy of their blossoms, which vary from the richest scarlet to the most delicate blush color. They are well adapted for single plants, on the lawn, for the edges or borders of groups of trees and for planting ornamental hedges. The foliage is very ornamental. The fruit has a delicious fragrance but is worthless.
- | | | |
|----------------|--------|--------|
| | EACH | 10 |
| 3 to 4 ft..... | \$0 75 | \$6 00 |
| 2 to 3 ft..... | 60 | 5 00 |
- C. alba** (White Flowering Quince). Flowers white or delicate blush.
- C. rosea** (Rose Flowering Quince). Semi-double rose.
- DEUTZIA CRENATA CANDIDISSIMA** (Double White Deutzia). A very upright growing shrub, with dull green leaves and very free flowering. Flowers, double, pure white, in erect panicles 2 to 4 inches long.
- D. gracilis rosea** (Pink Flowering Deutzia). Japan. A very attractive free flowering shrub, blooming very long racemes of light rose-colored flowers.
- | | |
|----------------|--------|
| | EACH |
| 2 to 3 ft..... | \$0 60 |
- DIERVILLA** (Weigela). Hardy ornamental shrubs from China. Blooms following lilacs.
- | | | |
|----------------|--------|----|
| | EACH | 10 |
| 4 to 5 ft..... | \$1 00 | |
| 3 to 4 ft..... | | 75 |
| 2 to 3 ft..... | | 60 |
- D. floridus** (Rose-colored Weigela). A handsome free-flowering shrub usually about six feet tall with numerous spreading branches. Leaves smooth, dark green. Flowers rose-colored, large and showy. The following are the best varieties of this species.
- D. lavalleyi** (Weigela). China. Hardy ornamental shrub which blooms after lilacs. Flowers very deep crimson. Strong grower.
- D. van houttei**. Flowers pink shaded crimson. A strong spreading grower.

**Deutzia Crenata Candidissima**

ERYTHRINA CRISTA-GALLI (Coral Plant). Brazil. The flowers are bright brilliant crimson color, like immense peas. Flowers profusely from early spring till late fall. A grand flowering shrub. EACH
Potted..... \$0 75

FORSYTHIA SUSPENSA (Golden Bell Drooping). China. Foliage deep green; flowers bright yellow; branches slender, drooping.

F. viridissima. China. An upright grower with narrow, dark green leaves and golden yellow flowers.

	EACH	10
3 to 4 ft.....	\$0 75	\$6 00
2 to 3 ft.....	60	5 00

HIBISCUS SYRIACUS (Althea or Rose of Sharon). Asia. Of the easiest cultivation and with large, delicately hued, bell-shaped flowers appearing very profusely during the summer months. EACH
4 to 5 ft..... \$1 00
3 to 4 ft..... 75

HYDRANGEA. Japan. There is nothing so effective as the Hydrangea for grouping. Their luxuriant foliage and rich, delicate flower globes render them very attractive. The prices of the following plants are regulated by the number of branches rather than by their height.

Except Domotoi—

H. hortensis. Has large, dark green leaves and globular heads of rose-colored flowers. EACH
Potted..... \$1 25

H. otaksa (Giant Flowering Hydrangea). Immense blooms of a pleasing shade of pink; heads 12 to 15 inches in diameter not uncommon. EACH
Potted..... \$1 50

H. paniculata grandiflora. A distinct variety producing pure white flowers. Very hardy. EACH
Potted..... \$1 00

SPECIAL VARIETY HYDRANGEA

H. domotoi. A new hybrid introduced by Domato Bros. of Oakland, Cal. Panicles are double, very large, whitish pink. A splendid forcing variety. EACH
Potted..... \$1 50

LAGERSTROMIA (Crape Myrtle). China. This very strong growing shrub, adapts itself to almost any soil condition. The leaves are bright green, the flowers with their pretty, curiously crimped petals, are produced in very large panicles at the ends of the branches during the entire summer. EACH
2 to 3 ft..... \$2 00

L. indica alba (White Crape Myrtle). Asia. A very rare and beautiful shrub with leaves ovate, dark lustrous green. Flowers very much crimped, pure white and ruffled. Seems to be exceptionally well adapted to our interior climates.

L. indica purpurea (Purple Crape Myrtle). A very free bloomer; flowers purple; a most desirable shrub for grouping; very rapid grower.

LIPPIA CITRIODORA (Lemon Verbena). S. America. The old-fashioned favorite shrub, with long, narrow, pointed leaves, which emit a delightful fragrance. EACH
3 to 4 ft..... \$0 75

PAEONIA MOUTAN (Peony Tree). China. These beautiful flowering shrubs bloom in April and are among the best flowering shrubs. Positions for planting should be selected where the influence of the sun's rays are not felt until late in the morning. The flowers are enormous in size. They range in colors through red, pink, purple and white. EACH
6 in box..... \$2 00

PHILADELPHUS (Mock Orange). Very vigorous shrubs with handsome foliage; flowers white, with orange-blossom fragrance. EACH
3 to 4 ft..... \$0 75

P. coronarius (Garland Mock Orange). Europe. Flowers pure white, delightful orange-blossom fragrance; one of the first to bloom.

P. grandiflorus (Large Flowered Mock Orange). Southeastern U. S. Slender, twiggy habit with fragrant flowers

PUNICA (Pomegranate). S. Asia. A particularly fine shrub for California. Flowers all through the summer season followed by brilliant showy fruits. Foliage glossy and handsome with ruddy tints on new growth.

Except Dwarf Varieties. EACH
3 to 4 ft..... \$0 75
2 to 3 ft..... 60

P. alba (Double White Pomegranate). Flowers double, creamy white.

P. legrellei (Mme. Legrelle Pomegranate). Very fine, large, scarlet flowers, edged with yellow.

P. rubra (Double Scarlet Pomegranate). Rapid-growing shrubs; flowers deep, double scarlet.

DWARF VARIETIES

	EACH	10
1 to 1½ ft.....	\$0 75	\$6 00

P. nana alba (Dwarf White Pomegranate). Very similar in habit to the following; flowers are double, yellowish white.

P. nana rubra (Dwarf Scarlet Pomegranate). Very rare. A handsome small shrub with beautiful double scarlet flowers; fruits brilliant red, very showy, but not to be eaten.

PYRUS (Flowering Crab Apple). Low growing trees or large free flowering shrubs admirably adapted to lend color to shrub borders. Very handsome and effective. EACH

4 to 5 ft..... \$1 25

P. alba (White Flowering Crab Apple). Double white.

P. bechtel. Small tree. Flowers double delicate pink, very fragrant.

P. niedwitzkyana. Imported from Siberia. Attractive on account of the bark. Leaves and fruit are red. The fruit is edible.

P. rosea. Double rose.

**Punica—Flowering Pomegranate.**



Philadelphus Coronarius—Mock Orange.

RHODOTYPOS KERRIOIDES (White Kerria). Japan. Has deeply veined leaves and white flowers, followed by small, black berries.

EACH	10
3 to 4 ft.	\$0 75

RHUS COTINUS (Smoke Tree). Europe. A low-growing, shrubby tree, with clusters of feathery, pale purple flowers, giving the appearance of a cloud of smoke.

EACH	10
3 to 4 ft.	\$0 75

SPIRAEA (Spirea). Medium-sized shrubs, embracing a wide range of growth, color of flowers and season of blooming. Of easy culture.

EACH	10
3 to 4 ft.	\$0 75
2 to 3 ft.	60
	5 00

S. billardii alba (Billards Spirea). White flowers in dense spikes, blooms nearly all summer.

S. bumalda (Anthony Waterer Spirea). A strong grower; a free bloomer; an ideal pot-plant; a grand Spirea.

S. thumbergi (Japanese Spirea). Branches slender and arching. Flowers single, white, borne in small loose clusters along the slender branches.

S. van houttei (Van Houtte's Spirea). Similar to the Bridal Wreath, but of a far more graceful habit. Flowers single. Blooms in April.

SYMPHORICARPOS RACEMOSUS (Snowberry). Eastern U. S. Has small pink flowers and large white berries which hang in clusters the greater part of the winter.

3 to 4 ft.	EACH	10
2 to 3 ft.	\$0 75	\$6 00
	60	5 00

SYRINGA (Lilac). Europe.

EACH	10
4 to 5 ft.	\$1 00
3 to 4 ft.	75
	\$6 00

S. vulgaris alba (Common White Lilac). Similar to following with white flowers.

S. vulgaris purpurea (Common Purple Lilac). An old favorite; very fragrant.

GRAFTED AND BUDDED VARIETIES

4 to 5 ft.	EACH	
3 to 4 ft.	\$1 25	\$1 00
	1 00	

S. chas. X. Reddish purple, single.

S. mad. c. perriere. Double white.

S. michel buchner. Pale lilac, double.

S. president grevy. Color of bloom is bluish lilac, very double, panicles large and showy.

TAMARISK (Tamarix). Elegant, fine-flowering and handsome shrub; thrives in all soils. One of the best for subduing shifting sands.

EACH	\$1 00
6 to 8 ft.	

T. estivalis (Japanese Hispida Tamarix). Japan. New. Very vigorous, upright grower; leaves bluish-green; flowers bright carmine-red. Blooms twice a year.

T. gallica (French Tamarix). Foliage exceedingly fine and feathery; flowers pink, small, very numerous.

VIBURNUM OPULUS STERILIS (Common Snowball). N. America. Produces an abundance of pure white, globular flowers in May and June.

EACH	10
3 to 4 ft.	\$0 75
2 to 3 ft.	60
	5 00

EVERGREEN TREES

Under this head are associated the trees which do not shed all their foliage at one time, thereby remaining green, although the old leaves do shed from time to time as they become overshadowed or crowded out by the younger foliage. It is the evergreen tree which has done so much to enliven the landscape of California during the winter months.

All stock quoted in tubs, cement pots and boxes are specimens which have been well established in their containers.

It often happens we have an assortment of large sizes in specimen plants on which it is difficult to make quotations in this list. We invite correspondence relative to same or personal inspection when convenient.

ACACIA. Although there are some 400 species of Acacia, we have confined ourselves to varieties of well-known merit, the uses of which are enumerated below. The Acacia finds the most favorable conditions to its development in California. Nearly all of them have their origin in Australia.

Except Baileyana.

	EACH	10
6 to 7 ft.	\$1 25	\$10 00
5 to 6 ft.	1 00	7 50
4 to 5 ft.	75	6 00
3 to 4 ft.	60	5 00

A. armata (Kangaroo Thorn). A spreading shrub, with yellow flowers; excellent for grouping.

A. cultriformis (Knife-Leaved). A small tree; leaves triangular shaped; blooms profusely; flowers deep yellow. Hardy.

A. dealbata (Silver Wattle). A rapid-growing tree; feathery foliage; golden yellow flowers in February. Very hardy.

A. latifolia (Golden Wattle). Of a spreading habit; valuable for grouping; long, glossy green leaves; flowers golden yellow.

A. melanoxylon (Black Acacia). A strong grower; one of the best for park and street planting.

A. mollissima (Black Wattle). One of the finest, foliage feathery, dark green; flowers yellow, appearing in early spring.

A. nerifolia (Floribunda). A beautiful street tree, of pendulous habit; long, narrow leaves and bright yellow flowers. Fine for grouping.

SPECIAL VARIETY OF ACACIA

A. baileyana. A fine specimen or avenue tree; blooms earliest of all; lemon-yellow flowers. One of the hardiest.

EACH	
4 to 5 ft.	\$1 50
3 to 4 ft.	1 25
2 to 3 ft.	1 00

ARAUCARIA BIDWILLI (Bunya Bunya Tree). Australia. A magnificent tree; branches in regular whorls, closely set with spiny deep green leaves; handsome for lawn, and by far the finest and most attractive of all evergreen trees. Does well in the interior valleys.

FACH	
Potted, 3 to 4 ft.	\$4 00
Potted, 2 to 3 ft.	2 50
Potted, 1½ to 2 ft.	1 50

A. imbricata (Monkey Puzzle). Chile. A fine tree of regular pyramidal form; leaves bright green, broad, thick, pointing and over-lapping each other. Will grow in the great interior valleys, but must be protected for a few years.

EACH	
Balled, 2 to 3 ft.	\$4 00

ARBUTUS MENZIESI (Madrona). California. The well-known native tree growing so abundantly in Coast Range; very rare in cultivation due to the difficulty of growing it; foliage thick; leathery, bright green, like the Magnolia; bark smooth, brownish red; flowers white, fragrant, succeeded by red berries.

EACH	
Balled, 2½ to 3 ft.	\$2 50
Balled, 2 to 2½ ft.	2 00

BRACHYCHITON DIVERSIFOLIA (Victorian Bottle Tree). Australia. A magnificent avenue tree with graceful, tapering trunk. Foliage bright, glossy green, deeply lobed; shape changes throughout the season. EACH
Potted, 6 to 7 ft. \$2 00
Potted, 4 to 6 ft. 1 50

CAMPHORA OFFICINALIS (Camphor Tree). China and Japan. A most symmetrical ornamental tree, thriving in poor soil; foliage bright green. Well adapted for lawn, street and avenue planting. EACH
Potted, 6 to 7 ft. \$2 00
Potted, 5 to 6 ft. 1 50
Potted, 4 to 5 ft. 1 25

CASUARINA (Beefwood She Oak). Native of Australia. With extremely hard wood equaling in this respect the walnut and hickory. Its redness has given it the popular name of Beefwood. The branches are long and slender and weeping, with jointed needle-like leaves. They are odd but beautiful ornamental trees, growing well even in alkali soils. Of very rapid growth. Stand pruning well and as formal street trees and for hedges we recommend them highly.

EACH
Potted, 6 to 7 ft. \$1 50
Potted, 5 to 6 ft. 1 25
Potted, 4 to 5 ft. 1 00

C. equisetifolia. Is of more erect habit than the quadrivalvis, but does not grow so tall.

C. cunninghamiana. Australia. Growth strong and dense. Branchlets very numerous and fine, with very short internodes. A handsome, rapid-growing tree.

C. quadrivalvis (Stricta). Of very rapid growth, with long drooping branches and pale green, needle-like leaves



Cedrus Libani—Cedar of Lebanon.

CEDRUS (Cedar). Of majestic habit; valuable for planting grounds or avenues, where shade is not an object. Will succeed all over California, and in warmer valleys when once established is of very rapid growth.

Except Rare Varieties. EACH 10
Tubs and boxes, 6 to 7 ft. \$10 00
Tubs and boxes, 5 to 6 ft. 7 50
Tubs and boxes, 4 to 5 ft. 5 00
Balled, 3 to 4 ft. 3 00 \$25 00
Balled, 2 to 3 ft. 2 50 20 00

C. atlantica (Mt. Atlas Cedar). Africa. A handsome pyramidal tree; silvery foliage; branches have an upright tendency.

C. deodara (Himalayan or Indian Cedar). Exceedingly handsome; drooping branches and silvery green foliage; very popular. The most rapid-growing of all cedars.

C. libani (Cedar of Lebanon). Asia Minor. Its biblical associations surround this tree with a sacred interest, which naturally appeals to our imaginations and this, combined with its adaptability to almost any soil, its vigorous, sturdy growth and dark green and lustrous foliage, should cause it to be widely planted.

BARE VARIETIES OF CEDAR

C. atlantica glauca (Mt. Atlas Silver Cedar). Similar to Atlantica, irregular straggling when young, later becoming symmetrical. A striking and most beautiful tree.

C. deodara verticillata glauca (Blue Cedar). Very picturesque; branches rather irregular and clothed with silvery blue foliage; very distinct.

EACH
Balled, 3 to 4 ft. \$3 50
Balled, 2 to 3 ft. 3 00
Balled, 1½ to 2 ft. 2 00



Sequoia gigantea—California Big Tree.

CHAMAECYPARIS LAWSONIANA (Lawson Cypress or Portford Cedar). California and Oregon. Graceful and conspicuous; branches horizontal, slightly pendulous; foliage dark green. Fine for grouping or single specimen. For timber it is said to be more durable than Coast Redwood.

EACH 10
Balled, 3 to 4 ft. \$3 00 \$25 00
Balled, 2 to 3 ft. 2 50 20 00

CRYPTOMERIA JAPONICA (Japan Cedar). Japan. Large, elongated, pyramidal tree, with straight, slender, tapering trunk; fern-like, upward spreading branches. The leading timber tree in Japan.

EACH 10
Balled, 3 to 4 ft. \$3 00 \$25 00
Balled, 2 to 3 ft. 2 50 22 50

C. japonica elegans (Elegant Japanese Cedar). Low, dense tree, with horizontal and pendulous branchlets; leaves soft; bronzy crimson in fall and winter.

EACH 10
Balled, 3 to 4 ft. \$3 00 \$25 00
Balled, 2 to 3 ft. 2 50 22 50

CUPRESSUS (Cypress). This numerous family of trees, with aromatic foliage, seem to adapt themselves to California conditions. Some varieties, like the *C. macrocarpa* (Monterey Cypress), stand pruning well and are very largely used for hedges. They grow very well in the interior valleys. Their native habits seem to be confined to California and the Gulf States. They are not particular in regard to soil and situation, but prefer deep, sandy loams.

EACH 10
Tubs and boxes, 6 to 8 ft. \$6 00
Tubs and boxes, 4 to 6 ft. 4 50
Balled, 4 to 6 ft. 3 50 \$30 00
Balled, 3 to 4 ft. 2 50 20 00
Balled, 2 to 3 ft. 1 50 12 50

Except C. sempervirens fastigiata (See Special Price).

C. arizonica (Arizona Cypress). Rare, slender, pyramidal; foliage pale, glaucous green, brown in winter.

C. goveniana (Goven's Cypress). California. Of erect growth, forming a handsome crown.

C. elegans (Knightiana Cypress). Mexico. Rapid grower; foliage glaucous green.

C. macrocarpa (Monterey Cypress). One of California's famous trees; foliage grayish green; desirable for hedges.

SPECIAL VARIETY OF CUPRESSUS

C. sempervirens fastigiata (Italian Cypress). Europe and Asia. Tall, tapering; branches erect, growing parallel with trunk; branches frond-like; leaves smooth, deep green.

	EACH	10
Balled, 8 to 10 ft.....	\$7 50	\$6 00
Balled, 6 to 8 ft.....	6 00	50 00
Balled, 4 to 6 ft.....	4 00	30 00

EUCALYPTUS (Gum Tree). The tree is a native of Australia and served a variety of purposes—for example, it is often planted in damp, swamp places, where it acts as a sort of drain, absorbing excess moisture and frequently improving an otherwise malarial locality. The ornamental value of the Eucalyptus is considerable; its merits should not be overlooked. All varieties planted in flats contain about 100 plants to the flat. As it is necessary to cut the flat in case a smaller quantity is ordered, part flats will be charged at 1½ cents per tree higher than the hundred rate.

	EACH	10
Potted, 5 to 6 ft.....	\$0 75	\$6 00
Potted, 4 to 5 ft.....	60	5 00
Potted, 3 to 4 ft.....	50	4 00
Transplanted in flats—10 to 12 inch	\$3 50 per 100, \$30.00 per 1000.	

E. citriodora (Lemon Scented Gum). Queensland. A rapid grower; foliage lemon scented, hence its name. Flowers creamy white. Tree sensitive to low temperatures. Wood strong and durable.

E. globulus (Blue Gum). Broad, bluish leaves when young. More extensively planted than any other variety; wood when polished resembles hickory. Valuable for wagon work, bridges, tool-handles, and as firewood.

E. hemiphloia (Common Box). Australia. A strikingly handsome variety, leaves glaucous green when young changing to deep green on both sides. Thrives well on the coast and in the interior valleys.

E. leucoxylon (South Australian Blue Gum). Similar in growth and foliage to the Leucoxylon Rosea except that the flowers are white.

E. leucoxylon rosea (South Australian Blue Gum). A rapid growing tree which adapts itself to a variety of locations. Thrives well on the coast and the interior. Foliage bluish cast; flowers are pink to scarlet. It's a strong rival to the Ficifolia on account of its hardiness. Fine for specimen or avenue planting.

E. polyanthemos (Red Box Gum). A fine avenue tree; leaves round, silvery; a late bloomer, withstands both drought and cold.

E. robusta (Swamp Mahogany Gum). Well adapted to moist ground; foliage deep, glossy green; immense clusters of white flowers in fall and winter; desirable for bee-keepers. Rather dwarfish habit.

E. rostrata (Red Gum). Outgrows any other variety in the interior valleys. Wood takes handsome finish and is desirable for interiors. Called "Red Mahogany." Valuable for ties, fence posts, etc.

E. rudis (Desert Gum). An excellent avenue tree, of very rapid growth, and withstands both heat and cold. Wood hard and close-grained.

E. tereticornis (Forest Gray Gum). Fully as rapid a grower as the Rostrata; timber somewhat more durable.

E. viminalis (Manna Gum). Very hardy; of rapid growth; fine avenue tree, with its long, graceful, festoonlike branches.

RARE VARIETIES OF EUCALYPTUS

E. ficifolia (Crimson Flowering Gum). A unique type; dwarfish habit, large, dark green leaves and great clusters of brilliant scarlet flowers. Seed-cones so large they are often used for pipe bowls. Tender.

	EACH	10
Potted, 3 to 4 ft.....	\$1 25	

E. globulus compacta (Bushy Blue Gum). It naturally forms a compact rounded head growing more like a shrub than a tree. Young growth is like the common Blue Gum but smaller and more silvery. Makes a fine specimen tree.

	EACH	10
Potted, 3 to 4 ft.....	\$1 00	\$10 00
Potted, 2 to 3 ft.....	75	

FICUS ELASTICA (Rubber Tree). Asia. Popular for indoor decorations; leaves large, dark, glossy green above, yellow beneath. Has a habit of staying bright and attractive even when neglected; is hardly practicable outdoors except in our southern coast counties.

	EACH	10
Potted, 4 to 5 ft.....	\$4 00	
Potted, 3 to 4 ft.....	3 00	
Potted, 2 to 3 ft.....	2 50	

GREVILLEA ROBUSTA (Australian Silk Oak). Australia. Very graceful, fern-like leaves; of rapid growth; covered with bronze-yellow flowers in early summer. Resists drought; stately for avenue and lawn.

	EACH	10
Potted, 6 to 7 ft.....	\$1 25	\$10 00
Potted, 5 to 6 ft.....	1 00	7 50
Potted, 3 to 4 ft.....	75	6 00

JUNIPERUS (Juniper). These extremely hardy trees seem to be as much at home in the warm interior valleys as they are in the coast counties. They are very ornamental, mostly of pyramidal or columnar habit, and are very decorative either as single specimens on the lawn or if planted in groups. The low growing species are admirably adapted for covering rocky slopes or sandy banks. They are well adapted for hedges, for planting as shelter or wind-breaks; also for seaside planting. The close-grained fragrant wood is much used for the interior finish of houses.

	EACH	10
Balled, 3½ to 4 ft.....	\$4 00	\$35 00
Balled, 3 to 3½ ft.....	3 50	30 00
Balled, 2 to 3 ft.....	3 00	25 00
Potted, 1½ to 2 ft.....	2 00	



Types of Eucalyptus Calophylla; Rostrata; Crebra; Polyanthema; Rudis; Ficifolia.

J. communis (Common Juniper). Eastern U. S. A tree with spreading branches, foliage grayish green, very dense; valuable as a ground cover.

J. Communis hiberica (Irish Juniper). Eastern U. S. An erect, dense, conical tree.

J. japonica (Japan Juniper). Japan. Of pyramidal habit, with grayish green foliage.

RARE VARIETIES OF JUNIPER

J. chinensis procumbens (Japanese Creeping Juniper). Valuable for rock work. A striking variety.

J. sabina (Savin Juniper). South Europe. Low shrub; trailing branches; foliage dense, dark green.

	EACH	10
Balled, 1½ to 2½ spread.....	\$3 00	
Balled, 1 to 1½ spread.....	2 50	

LIBOCEDERUS DECURRENS (Incense Cedar). A very ornamental, distinct, erect, compact, growing tree, with a stout trunk; branches a bright, rich, glossy green, glaucous underneath; a native of the mountain regions of California and Oregon. Does exceedingly well on the coast and in the interior. EACH 10
 Balled, 2 to 3 ft. \$2 50
 Balled, 1½ to 2 ft. 2 00

MAGNOLIA GRANDIFLORA (Bull Bay Magnolia). Southern U. S. One of the grandest of broad-leaved evergreens; flowers fragrant, 10 to 12 inches across. Blooms abundantly in May and June, succeeded by cone-like fruits bearing seeds of a deep coral-red in October. Adapts itself to a wide range of locations. Foliage thick, brilliant green on the upper surface, and rusty underneath; flowers pure waxy white. EACH 10
 Balled, 5 to 6 ft. \$5 00 \$45 00
 Balled, 4 to 5 ft. 4 00 35 00
 Balled, 3 to 4 ft. 3 00 25 00
 6-inch box, 3 to 4 ft. 1 50 12 50
 6-inch box, 2 to 3 ft. 1 00 9 00

PARKINSONIA ACULEATA (Jerusalem Thorn). A rare and beautiful thorny tree, with needle-like leaves; feathery, drooping branches and yellowish flowers. EACH
 Potted, 4 to 5 ft. \$1 50
 Potted, 3 to 4 ft. 1 25

PICEA PUNGENS GLAUCA (Colorado or Koster's Blue Spruce). Rocky Mountains. Branches in regular whorls, gradually receding toward top, and forming a conical outline. Leaves vary from green to silvery white. Thrives in dry climate.

P. polita (Tiger Tail Spruce). Japan. The tree is of erect habit and has sharply pointed, rigid, bright green leaves. A splendid tree for lawn planting. EACH
 Balled, 2½ to 3 ft. \$4 50
 Balled, 2 to 2½ ft. 3 50
 Balled, 1½ to 2 ft. 3 00

PINUS (Pine). The family of pines is probably one of the most important of timber trees. The trees are usually tall with spreading branches forming a pyramidal or rounded-top and becoming very picturesque in old age. They are much used for subduing shifting sands and for seaside planting. They are all valuable for the decoration of parks, gardens, and for grouping among other trees. Should be planted extensively for windbreaks. Can also be used to splendid advantage for planting large estates and natural parks in the foothills.

EACH 10
 Balled, 5 to 6 ft. \$3 50 \$30 00
 Balled, 4 to 5 ft. 3 00 25 00
 Balled, 3 to 4 ft. 2 50 20 00
 Balled, 2 to 3 ft. 2 00 17 50

P. austriaca (Austrian Pine). Southern Europe. Robust, hardy, spreading; leaves rigid, dark green; thrives in exposed situations.

P. canariensis (Canary Island Pine). A rapid-growing, handsome pine. Leaves slender, spreading and pendulous, dark green.

P. halepensis (Aleppo Pine). Western Asia. A fine variety, with dense, bluish foliage.

P. maritima or pineaster (Cluster Pine). Southern Europe. A beautiful tree; leaves stiff, twisted, bright, glossy green. Of variable habit. Valuable for the seaside. Does well in the interior.

P. montana (Swiss Mountain Pine). Mountains of Middle Europe. Handsome, spreading, low-growing; bright green leaves.

P. pinea (Parasol or Italian Stone Pine). Southern Europe. This most beautiful tree is one of the features of the landscape in Southern Europe. Does remarkably well in California and is worthy of wide dissemination. Branches spreading, usually clustered at top of tree.

P. radiata or insignis (Monterey Pine). California. Leaves slender and dark green. Well adapted to coast regions.

P. sylvestris (Scotch Pine). Europe and Asia. Of robust growth, with pendulous branches; leaves bluish green.

QUERCUS (Oak). The evergreen oaks are among our most picturesque trees. The Q. agrifolia with its bright, dark green foliage relieves the bareness of the hills during the summer months; in addition to this on the deep rich valley lands it makes a fine low-spreading tree, always effective. In late years more attention has been given to the oak for avenue and park planting. We can recommend the tree highly for both purposes. EACH 10
 6-inch boxes, 3 to 4 ft. \$1 50 \$10 00
 6-inch boxes, 2 to 3 ft. 1 00 8 00

Q. agrifolia (California Live Oak). The well-known majestic evergreen, growing abundantly along the shores of San Francisco Bay and the interior valleys, adding great beauty to our lowland scenery.

Q. suber (Cork Oak). S. Europe, N. Africa. A very ornamental and upright growing variety of evergreen oak; thrives well here; the outer bark furnishes the cork of commerce. A magnificent tree for avenues, parks or street planting.

SCHINUS MOLLE (Pepper Tree). Peru. A most picturesque park, avenue or shade tree. Feathery foliage, yellowish-white blossoms followed by rose-colored or deep red berries.

EACH 10
 Potted, 4 to 5 ft. \$1 00 \$7 50
 Potted, 3 to 4 ft. 75 6 00

SEQUOIA GIGANTEA (California Big Tree). California. A magnificent park, avenue or specimen tree, of pyramidal form; lower branches sweeping the ground. Foliage bluish green, completely covering the branches. This is the famous "Big Tree of California." Reaches a diameter of 30 feet.

EACH
 Balled, 3 to 4 ft. \$5 00
 Balled, 2 to 3 ft. 3 50
 Balled, 1½ to 2 ft. 2 00

SEQUOIA SEMPERVIRENS (California Redwood). California. A valuable ornamental tree of rapid growth and of a tapering pyramidal habit. Leaves dark green with two pale bands beneath. The seed-cones, measuring 1 inch or less in length, are borne on long, drooping stems. Timber world famous. Diameter 15 feet.

EACH
 Balled, 4 to 5 ft. \$4 00
 Balled, 3 to 4 ft. 3 00
 Balled, 2 to 3 ft. 2 00

TAXUS (Yew). Very desirable for park planting; densely clothed with dark green. Wood heavy, hard, close-grained, strong, elastic, reddish. Thrive best in a moderately moist sandy loam. In warm dry climates they must be shaded the first year.

T. baccata (English Yew). Europe. Slow growth; densely branched, spreading head; dark green leaves.

EACH
 Balled, 4 to 5 ft. \$6 50
 Balled, 3 to 4 ft. 5 00
 Balled, 2 to 3 ft. 3 50

T. baccata fastigiata (Irish Yew). An upright growing variety; deep, dark green foliage. One of the most desirable evergreens of columnar habit for formal gardens.

EACH
 Balled, 4 to 5 ft. \$8 00
 Balled, 3½ to 4 ft. 7 00
 Balled, 3 to 3½ ft. 6 00
 Balled, 2½ to 3 ft. 5 00

T. baccata fastigiata variegata (Irish Variegated Yew). Same habit as above, but with part of the foliage striped and margined with silvery white or pale straw-colored blotches.

EACH
 Balled, 3½ to 4 ft. \$7 00
 Balled, 2½ to 3 ft. 5 00

THUYA (Arborvitae). The Thuyas are all of regular, symmetrical habit. They are roundish, pyramidal and are well suited for massing or borders. Also for hedges and windbreaks.

EACH 10
 Balled, 4 to 5 ft. \$4 50 \$40 00
 Balled, 3 to 4 ft. 3 50 30 00
 Balled, 2 to 3 ft. 2 50 20 00

T. filiformis pendula (Weeping Arborvitae). Weeping variety, with pendulous, thread-like branches; foliage light yellowish-green.

T. occidentalis (American Arborvitae). A native species known as the White Cedar. Foliage bright green, yellow-green beneath; brown and bronze in winter.

T. orientalis aurea (Golden Arborvitae). Elegant variety, regular habit; foliage beautifully tinged with gold in the spring.

T. plicata or gigantea (Giant Arborvitae). Pacific Coast. Branches spreading, regularly and closely set; foliage bright green, dark green beneath. The bark is brownish-red and very attractive.

T. plicata aurea (Giant Golden Arborvitae). Similar in growth to the Gigantea except that the foliage is marked with yellow. One of our native conifers.

THUYOPSIS BOREALIS (Nootka Sound Cypress). Sitka to Oregon. Very desirable; pyramidal habit, with light, glossy green foliage. EACH
 8-inch boxes, 3 to 4 ft. \$1 50

UMBELLULARIA CALIFORNICA (California Laurel or Bay Tree). California. A very rapid growing tree with glossy lanceolate oblong leaves. Along the coast near water courses it grows to perfection and makes a striking handsome tree. The foliage emits an agreeable perfume when bruised. Thrives as well in the interior but does not grow so tall.

EACH
 Balled, 4 to 5 ft. \$3 00
 Balled, 3 to 4 ft. 2 50
 Balled, 2 to 3 ft. 1 50

EVERGREEN SHRUBS

Nowhere in the United States or perhaps in all the world is it possible to use the large assortment of beautiful flowering evergreen shrubs, many of which bear colored berries in the winter season, as in California. These hundreds of different varieties of green, golden and silver variegated foliaged plants are used for every purpose to make the gardens and landscape views attractive every day of the year.

ABELIA GRANDIFLORA OR RUPESTRIS. A garden hybrid. A pretty shrub of straggling growth, bearing small, fragrant, tube-like flowers during the entire summer, color light rose on the outside and white on the inside.

	EACH
Balled, 3 to 4 ft.....	\$2 50
Balled, 2 to 3 ft.....	1 50

AUCUBA JAPONICA (Japanese Laurel). S. Asia to Japan. A very handsome shrub and one of the best of the colored-leaved foliage plants; leaves large, distinctly speckled with golden-yellow; should be grown in partial shade.

A. japonica aurea maculata. 6 feet. A form of the above, with yellow spotted leaves.

	EACH
Potted, 1½ to 2 ft.....	\$1 25

ARBUTUS UNEDO (Strawberry Tree). Europe. Foliage dark green, peculiarly beautiful in the fall, when the tree is covered at once with blossoms and ripe fruit, which is edible; identical in appearance with strawberries.

	EACH
Balled, 2 to 3 ft.....	\$2 00
Potted, 1½ to 2 ft.....	1 25
Potted, 1 to 1½ ft.....	1 00

BERBERIS DARWINI (Darwin's Barberry). Chile. A spreading shrub, with thick, leathery foliage; flowers orange-yellow, very fragrant, followed by dark purple fruit.

	EACH
Balled, 2 to 3 ft.....	\$2 00
Potted, 1½ to 2 ft.....	1 00
Potted, 1 to 1½ ft.....	75

B. stenophylla. A garden hybrid. It has long, slender arching branches. Leaves small, long and narrow, dark green above, silvery beneath. Flowers deep golden yellow.

	EACH
Balled, 2 to 3 ft.....	\$2 00
Potted, 2 to 2½ ft.....	1 50
Potted, 1½ to 2 ft.....	1 00

B. wilsonae. Distinct, handsome shrub with small foliage, brilliant fall coloring. Flowers golden yellow.

	EACH
Balled, 1½ to 2 ft.....	\$1 50

BUXUS (The Boxwoods). These very ornamental shrubs of dense but rather slow growth, with shining foliage are invaluable for grouping, lawn decoration and for hedge purposes.



Box or Buxus. Trained as a Globe.



Carpenteria californica. Wild Anemone—A Grand California Native Shrub.

poses. For tub culture and for formal decorative work they are more extensively grown than any other class of plants. The very hard and close-grained wood is in demand for engraving and finer turnery work.

	EACH
Cement pots, 2 to 3 ft.....	\$6 00
Cement pots, 1½ to 2 ft.....	5 00
Balled, 2½ to 3 ft.....	5 00
Balled, 2 to 2½ ft.....	4 00
Balled, 1 to 1½ ft.....	2 00

Except *Suffruticosa* and *Handsworthi*—See Special Price.

B. sempervirens (Box Tree). Europe. Large shrubs of dense habit; small foliage.

B. sempervirens arborescens. Tall shrub or small tree. Suitable for tall hedge.

B. sempervirens argentea-marginata (Silver Striped-Leaved Box Tree). Of the same habit as the above, but with silvery striped leaves.

B. sempervirens macrocarpa rotundifolia. Foliage large, golden. Fine for single specimens.

SPECIAL VARIETIES OF BUXUS

B. handsworthi. Erect grower, noted for the size and symmetry of its foliage.

	EACH
Balled, 1½ to 2 ft.....	\$3 50
Balled, 1 to 1½ ft.....	2 50

B. sempervirens suffruticosa (Dwarf Box). Small bush, with glossy, roundish leaves; extensively used for edging.

	EACH
Cement Pots, 1½ to 2 ft.....	\$4 00
Balled, 1 to 1½ ft.....	2 00

BUDDLEIA JAPONICA. Japan. A handsome ornamental shrub, spreading habit; flowers lilac color and borne in pendulous racemes.

B. globosa (Globe Buddleia). Chile. Medium size. Leaves long, narrow and rough. Flowers, fragrant.

	EACH
Potted, 1½ to 2 ft.....	\$0 75

CAMELLIA JAPONICA. Japan. Very beautiful winter flowering evergreens; their handsome, shining, dark green foliage and magnificent, wax-like flowers of various colors which appear in great profusion all winter render them indispensable for the conservatory, and well adapted for parlor or window culture; perfectly hardy in this climate, in the open ground, but should be planted in a shady place and protected the first year.

Well branched plants varying from 1 to 4 feet.

	EACH
Potted.....	\$3 00

C. alba (Double White Camellia). Produces abundance of large, pure white, double flowers.

C. rosea (Double Pink Camellia). Blooms early; one of the best.

C. rubra (Double Red Camellia). Flowers very double; largest size; beautiful red.

C. variegata (Double Red and White Camellia). Flowers double red, striped white; free-flowering.



Camellia.

CARPENTERIA CALIFORNICA (Wild Anemone). An ornamental, tall growing shrub; a native of the Sierra Nevada mountains; flowers pure white with yellow stamens like a greatly enlarged Mock Orange, from three to four inches across, and very fragrant. Adapted to the driest locations. A grand native shrub. EACH

Potted, 1½ to 2 ft. \$1 50

CEANOTHUS THYRSIFLORUS (California Lilac). A splendid variety, with fine, dark green foliage; flowers light blue. EACH

Potted, 1½ to 2 ft. \$1 00

Potted, 1 to 1½ ft. 75

CERASUS (Cherry). Very ornamental with shining, dark glossy green holly-like foliage, and found growing in the lower foothills throughout California. Flowers are produced in racemes and are followed by large red or black purple cherries, the stone almost filling them. A superb shrub and worthy of extensive cultivation. Often used for hedges. EACH

Potted, 3 to 4 ft. \$1 50

Potted, 2 to 3 ft. 1 25

Potted, 1½ to 2 ft. 75

C. ilicifolia (California Evergreen Cherry). With brilliant foliage, lighter than Holly. Found in the lower foothills of California.

C. integrifolia (Broad-Leaved Cherry). Catalina Islands, California. Similar to preceding; leaves larger, with few spines; flowers more numerous and fruit larger.

CESTRUM AURANTIACUM. Guatemala. Free-flowering evergreen shrub; covered all summer with orange-colored flowers. EACH

Potted, 1½ to 2 ft. \$0 75

CHOISYA TERNATA (Mexican Orange). Mexico. Low-growing shrub; glossy, bright green, fragrant leaves and abundant, snowy, sweet-scented flowers during the entire season. Very desirable for hedges. EACH

Balled, 1½ to 2 ft. \$1 50

CISTUS LADANIFERUS (Spotted Rock Rose). Europe. Spreading shrub of prostrate growth. Flowers large, pure white with crimson spot at base of petals. Handsome and free flowering. EACH

Potted, 1½ to 2 ft. \$0 75

COPROSMA BAURI. New Zealand. Dense-growing shrub with rounded, glossy green leaves. Fine decorative specimen plants; makes a fine compact hedge. EACH

Potted, 1½ to 2 ft. \$1 00

Potted, 1 to 1½ ft. 75

CORNUS CAPITATA (Evergreen Dogwood). Himalayas. A large-sized shrub, flowers large, similar to those of the eastern flowering Dogwood. The plant is extremely suc-

cessful in California. Flowers cream-colored becoming ruddy before falling, followed by large, red showy fruits, edible but insipid. A most beautiful plant and deserves to be widely planted. EACH

Balled, 2 to 3 ft. \$1 25

CORONILLA GLAUCA. Europe. Pretty evergreen shrub, covered with yellow flowers in summer; fragrant in daytime, scentless at night; foliage glaucous green. EACH

Potted, 2 to 3 ft. \$1 00

Potted, 1½ to 2 ft. 75

COTONEASTER. Chiefly grown for their red fruits which are borne in great profusion and remaining throughout the whole winter. Thrive in any good drained soil. Rapidly attaining great and deserved popularity.

C. acuminata nepalensis. Himalayas. Erect grower; leaves medium size, pointed, flowers white slightly pink, followed by showy red berries. EACH

Balled, 2 to 2½ ft. \$1 50

C. augustifolia. China. Spreading grower, leaves long and narrow. Berries orange yellow, persisting all winter. EACH

Potted, 2 to 3 ft. \$1 00

Potted, 1½ to 2 ft. 75

C. horizontalis. China. Branches stout, almost horizontal; large, rose-colored flowers; leaves small, turning bright red in fall. EACH

Potted, 1½ to 2 ft. \$1 00

C. microphylla. Himalayas. Well adapted for rockeries on account of their low, almost horizontal growth. They will thrive in any ordinary garden soil. Flowers small, white, appearing in May and followed during the fall and winter months with bright red berries. EACH

6-inch boxes, 1½ to 2 ft. \$1 50

Potted, 1 to 1½ ft. 1 00

C. microphylla thymifolia. A dense, compact, prostrate grower with tiny dark green leaves, flowers white, berries purplish red. Dainty evergreen. EACH

Balled, 1½ to 2 ft. \$2 00

Potted, 1 to 1½ ft. 1 00

C. pannosa. China. Shrub of upright growth, branches long and slender, leaves deep green above, silvery beneath. Flowers white and followed by enormous quantities of red berries in fall. EACH

Potted, 3 to 4 ft. \$1 25

Potted, 2 to 3 ft. 1 00

CYTISUS (Broom). Will succeed in almost any soil or situation. The large, pea-shaped flowers appear in the spring, followed by small pods; leaves rounded elongation of the stem.



Evonymus—Duc d'Anjou.



Grevillea Thelemanniana.

C. hispanica (Spanish). Europe. An upright-growing shrub; flowers yellow, on long, drooping, leafless branches

Potted, 3 to 4 ft.	EACH	\$0 75
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C. scoparius (Scotch). Europe. Drooping branches; covered in spring with bright yellow, pea-shaped flowers.

Potted, 2 to 3 ft.	EACH	\$0 60
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DATURA ARBOREA (Angel Trumpet). A large shrub or small tree, leaves 6 to 12 inches long and clothed with a powdery pubescence; flowers creamy white, large, 7 to 8 inches long, trumpet-shaped, with a musk-like odor. Blooms all summer.

Potted, 2 to 3 ft.	EACH	\$1 00
Potted, 1½ to 2 ft.	EACH	75

DIOSMA ERICOIDES (Breath of Heaven). Africa. Foliage heath-like; agreeably fragrant; flowers white, small, star-shaped; used in floral work. Plant hardy; very easily grown.

Potted, 1½ to 2 ft.	EACH	\$1 00
Potted, 1 to 1½ ft.	EACH	75

ELAEAGNUS (The Evergreen Oleaster). Highly ornamental shrubs with handsome foliage and for this reason very decorative either on a lawn or as single specimens. Will do well in any ordinary soil and thrive remarkably well in the interior valleys. Very attractive planted as a hedge, trimmed to a height of 5 feet.

Balled, 2 to 4 ft.	EACH	\$3 00
Balled, 2 to 3 ft.	EACH	2 00
Potted, 2 to 3 ft.	EACH	1 00
Potted, 1½ to 2 ft.	EACH	75

E. reflexa maculata (Golden Leaved Oleaster). Japan. Foliage blotched golden yellow.

E. reflexa variegata (Variegated Oleaster). Japan. Of same habit as the preceding, except leaves margined yellowish.

ERICA (Mediterranean Heath). S. Europe. Dwarf shrub with numerous short branches, densely clothed with small needle-like leaves. Very showy plants and produce exquisite purplish-pink flowers in early spring. This is the only variety that will do well in warm climates.

Balled, 2 to 3 ft.	EACH	10	\$2 50	\$20 00
Potted, 1 to 1½ ft.	EACH	1 00	75	50

ESCALLONIA. South America. These fine plants grow freely in almost any ordinary soil; they are well adapted as shelter plants for hedges. As foliage plants alone they are exceedingly attractive but add to this their very free-flowering habit and they present a combination of qualities making them invaluable as all around purpose plants.

E. alba. Shrub of erect habit; foliage dark green, glossy; flowers loose in panicles, white.

Balled, 3 to 4 ft.	EACH	\$2 50
Potted, 1½ to 2 ft.	EACH	1 00

E. montevidensis. Erect bush, cylindrical branches; roundish, dark, glossy leaves; flowers white, all summer.

Potted, 2 to 3 ft.	EACH	\$1 25
Potted, 1½ to 2 ft.	EACH	1 00

E. rosea. In general, same as preceding; flowers light pink.

Potted, 1½ to 2 ft.	EACH	\$1 00
Potted, 1 to 1½ ft.	EACH	75

E. rubra. Branches erect, hairy; dwarf; shining green leaves, bright red flowers.

Balled, 2 to 3 ft.	EACH	\$2 00
Potted, 1½ to 2 ft.	EACH	1 00

EUGENIA MYRTIFOLIA (Brush Cherry). Australia. Handsome shrub of compact growth; leaves dark green, the new growth being a ruddy red. Blooms very profusely, followed with purple berries. Will not stand much cold.

Potted, 3 to 4 ft.	EACH	\$2 00
Potted, 2 to 3 ft.	EACH	1 50

EVONYMUS. Japan. Very desirable for hedges. Variegated varieties are very effective when planted alone or when established in containers for porch decorations. The shrubs are being very largely planted in all parts of the State. Stands severe pruning.

Balled, 2 to 3 ft.	EACH	\$2 00
Balled, 1½ to 2 ft.	EACH	1 50
Balled, 1 to 1½ ft.	EACH	1 00
6-inch box, 1 to 1½ ft.	EACH	75

Except rare varieties, see price.

E. japonicus (Evergreen Evonymus). Dense, upright; leaves dark, lustrous green.

E. japonicus albo marginatus (Silver-margined Evonymus). Compact growth; leaves have narrow white margin.

E. japonica argenteo variegatus (Silver Variegated Evonymus). Upright; silvery variegated foliage.

E. japonicus aureus (Golden Leaved Evonymus). Prized for its golden foliage.

E. japonicus duc d'anjou (Golden Blotched Evonymus). Leaves light green, center blotched or variegated light yellow and green.

RECENTLY INTRODUCED VARIETIES OF EVONYMUS

E. pulchellus microphyllus. Dwarf; small; deep green leaves. Very desirable for low hedges.

Cement Pots, 1½ to 2 ft.	EACH	\$2 50
Balled, 1 to 1½ ft.	EACH	1 25

E. japonicus medio pictus. Moderate grower; leaves with yellow blotch in middle. Yellow stems.

6-inch box 1½ to 2 ft.	EACH	\$1 00
6-inch box, 1 to 1½ ft.	EACH	75

E. japonicus president gouthier. A splendid variety with large leaves, beautifully variegated creamy white.

6-inch box, 1 to 1½ ft.	EACH	\$1 25
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E. japonicus compacta viridis (New). A very compact, erect-growing variety, with bright green leaves.

6-inch boxed, 1½ to 2 ft.	EACH	\$1 00
Potted, 1 to 1½ ft.	EACH	75



Ligustrum. Privet.



Myrtus Communis. Trained Globe Specimen.

FABIANA IMBRICATA. S. America. A very erect-growing shrub with heath-like foliage and white, funnel-shaped flowers.

	EACH
Potted, 2 to 3 ft.....	\$1 00
Potted, 1½ to 2 ft.....	75

FATSIA (Aralia). The Aralias, with the exception of *A. papyrifera*, are only adapted for house or conservatory culture. They are very pretty decorative plants and do remarkably well indoors. They grow in open ground in Southern California.

	EACH
Boxed, 3 to 4 ft.....	\$2 50
Potted, 2 to 3 ft.....	1 50
Potted, 1½ to 2 ft.....	1 00

F. japonica sieboldii (Japanese Aralia). Japan. A beautiful plant, with large, glossy palmate leaves.

F. japonica sieboldii variegata (Japanese Variegated Aralia). Similar to the preceding, except that leaves are broadly marked creamy white.

GREVILLEA THELEMANNIANA. Beautiful evergreen shrub, fine feathery foliage producing continuous display of brilliant scarlet flowers on ends of branches. Plant only in protected sections of California.

	EACH
Potted, 2 to 3 ft.....	\$1 25
Potted, 1½ to 2 ft.....	1 00

HETEROMELES ARBUTIFOLIA (Christmas Berry). A native shrub of California, growing quite abundantly in the coast counties and thriving equally as well in the hot, dry climate of the interior. In bloom in the summer in numerous white panicles. Valued highly not only as a striking decorative plant but for the deep red berries which hang in immense clusters on the ends of the branches from November to February. These berries are extensively used during the holidays and are known as Christmas Berries, Holly Berries, etc.

	EACH
Potted, 2 to 3 ft.....	\$1 50
Potted, 1½ to 2 ft.....	1 25

HYPERICUM MOSERIANUM (Gold Flower). France. Hardy; abundant single yellow flowers, 2 inches across; leaves dark green, ovate.

H. patulum henryii. This variety is hardier than the preceding and makes a vigorous growth. Suitable for low hedges

	EACH
Potted, 2 to 3 ft.....	\$1 00
Potted, 1½ to 2 ft.....	75
Potted, 1 to 1½ ft.....	50

LAURUS (Laurel). There are few foliage plants superior to the Laurel for inside or out-of-door decoration or ornamental purposes. They can be used advantageously as single specimens for grouping and for embellishing the lawn and are very effective wherever planted. Habitat S. Europe.

	EACH
Balled, 4 to 6 ft.....	\$4 00
Balled, 3 to 4 ft.....	3 00
Balled, 2 to 3 ft.....	2 50

L. cerasus (English). Broad, shining leaves; great clusters of creamy white flowers; purple berries

L. nobilis (Sweet Bay). Upright; deep, dark green, fragrant leaves; covered in fall with shiny black berries. May be pruned or cropped into various shapes

LEPTOSPERMUM LAEVIGATUM. Australia. A tall, gracefully arching shrub; foliage grayish green; flowers white in the greatest profusion. A fine shrub to secure rapid effects; not very particular as to location. Used very extensively in the pioneer work in Golden Gate Park. Does very well in the interior valleys.

	EACH
Balled, 1½ to 2 ft.....	\$1 25 \$10 00

L. scoparium nicholii (Tea Tree). Australia. A tall, gracefully arching shrub of rapid growth. The leaves are purple when plant is grown in the open. Flowers carmine. Does well in the interior valleys.

	EACH
Potted, 4 to 5 ft.....	\$1 50 \$12 50
Potted, 3 to 4 ft.....	1 25 10 00
6-inch box, 2 to 3 ft.....	1 00 7 50

LIGUSTRUM (Privet). Ornamental shrubs or small trees, with shining green leaves and small, whitish flowers, followed by black, round berries. Fine for tall hedges.

	EACH
Balled, 4 to 5 ft.....	\$2 00
Balled, 3 to 4 ft.....	1 50
Potted, 3 to 4 ft.....	1 00
Potted, 2 to 3 ft.....	75

L. japonicum (Japanese Privet). Glossy, dark, leathery leaves; white flowers in clusters, purplish berries.

L. nepalense. Himalaya. An exceedingly strong upright grower; light green leaves. Well adapted for hedges.

L. ovalifolium (California Privet). Japan. A pyramidal shrub with bright green, narrow leaves; producing white flowers in June.

L. robusta variegatum. Rapid growth; rich green leaves beautifully variegated with yellow.

L. sinense (Chinese Privet). Slender, spreading leaves shining dark above, light beneath; bluish black berries covered with bloom.

LITHRAEA MOLLEOIDES. Brazil. Closely related to the pepper tree. Leaves are alternate; flowers small, greenish white which are borne in panicles. Makes a good informal hedge.

	EACH
Potted, 1½ to 2 ft.....	\$0 75
Potted, 1 to 1½ ft.....	50

LONICERA NITIDA. A very beautiful shrub of recent introduction. Its graceful stems with a wealth of tiny, glossy green leaves, white flowers, followed with purple fruit make it very desirable.

	EACH
Potted, 1½ to 2 ft.....	\$0 75
Potted, 1 to 1½ ft.....	60

MAHONIA AQUIFOLIUM (Oregon Grape). Pacific Coast. Shining, purplish, prickly leaves; bright yellow flowers; berries blue-black. A native variety used for covert planting.

	EACH
Balled, 2 to 3 ft.....	\$2 00 \$15 00
Balled, 1½ to 2 ft.....	1 50 12 50
6-inch box, 1 to 1½ ft.....	75

MELALEUCA. Australia. These low-spreading shrubs are wonderfully well adapted to the interior valleys of California. Their free-flowering qualities, combined with their rapidity of growth, make them valuable acquisitions.

	EACH
Potted, 4 to 5 ft.....	\$1 50
Potted, 3 to 4 ft.....	1 25
Potted, 2 to 3 ft.....	75

M. armillaris (White Flowers). Flowers white.

M. decussata. Smooth leaves; lilac-colored flowers in August.

M. ericifolia. Flowers pale yellow; leaves feathery, spreading or recurved.

M. hypericifolia. Of spreading habit; flowers red.

M. wilsonii. Fine erect-growing shrub with medium-sized, lance-shaped leaves. Foliage soft and pleasing. New growths ruddy, making a beautiful contrast.

METROSIDEROS (Callistemon or Bottle Brush). Australia. Thrives perfectly in California. Is covered with rich crimson flowers in dense racemes from May to July. A very beautiful and attractive large shrub.

	EACH
Potted, 2 to 3 ft.....	\$0 75
Potted, 1½ to 2 ft.....	60

M. robusta. An odd shrub, covered with rich, crimson flowers, in dense racemes in July.

M. semperflorens. Leaves thick, lanceolate, reddish when young; flowers reddish spikes; rather loose. Rapid grower.

MYRTUS (Myrtle). Europe. Classic shrub, with handsome, aromatic foliage and fragrant white flowers which appear all summer; effective for grouping. We can supply these plants trimmed up like Bay Trees with 2- to 3-foot stem and crowns well shaped and developed. These make fine specimens for formal planting and when planted in containers are very desirable for porch decorations.

Standard:	EACH
Tubs, 18-inch stem, 24-inch head.....	\$3 50
Bush Form:	EACH 10
Potted, 1½ to 2 ft.....	\$1 00 \$7 50
Potted, 1 to 1½ ft.....	75 5 00

M. communis (Common Myrtle). Dwarf shrubs; lustrous green leaves. Does well in the interior valleys.

M. microphylla (Small Leaved Myrtle). Small, dark green foliage, set closely along branches. Fine ornamental shrub.



Mahonia aquifolium—Oregon Grape. Blue Berries with Dark Green Foliage. Very Attractive.

NANDINA DOMESTICA (Japanese Nandina). A beautiful upright growing, dwarfish shrub with a number of reed-like stems about as thick as a finger and crowned with deep, glossy green leaves and with red, and in the winter assumes beautiful coppery tones. In the fall it is covered with masses of small red and white berries. This elegant, graceful plant does well on the coast and interior.

	EACH
Balled, 3 to 4 ft.....	\$3 00
Balled, 2 to 3 ft.....	2 00
Potted, 1½ to 2 ft.....	1 00

NERIUM (Oleander). S. Asia. We are making a specialty of growing these beautiful plants, and have selected the following fine varieties as the best. Oleanders are particularly adapted to this climate and are deserving of more cultivation than has been given to them; their large, deep green foliage, combined with their fragrant flowers of many hues, which appear all summer, render them our most attractive and effective ornamental plants.

	EACH
Boxed, 4 to 5 ft.....	\$2 50
Boxed, 3 to 4 ft.....	2 00
Balled, 4 to 5 ft.....	1 50 \$12 50
Balled, 3 to 4 ft.....	1 25 10 00
Potted, 2 to 3 ft.....	1 00 7 50

N. album maximum. A robust grower with good foliage; single white flowers.

N. album plenum. The most perfect white variety; flowers very double in large trusses. Very free flowering.

N. atropurpureum duplex. One of the best doubles; deep carmine, streaked white.

N. doctor golfin. Bright lilac rose, single.

N. laurifolium. Especially remarkable on account of its stiff, broad foliage like that of a laurel. Flowers rosy pink, streaked white. A thrifty grower.

N. lillian henderson. Double white; heliotrope-scented.

N. madame peyre. Double; ivory to straw color.

N. madame sarah bernhardt. Immense truss; single, delicate white, streaked pink.

N. mme. planchon. Semi-double; rosy lilac.

N. madoni grandiflorum. Creamy white, semi-double, fragrant; strong grower.

N. mrs. f. roeding. Originated by us; strong grower; very hardy. Flowers double, finely fringed, color of La France rose.

N. nankin. Single; salmon-yellow; of dwarfish habit; best yellow.

N. nankin variegata. Leaves beautifully variegated; flowers double, light pink.

N. professor durant. Very double; changing from creamy yellow to deep amber-yellow.

N. purpureum. Single; deep carmine-crimson, shaded maroon.

N. sister agnes. Very large truss; single pearly white; very free-blooming.

N. splendens giganteum. Double rose; very fragrant; largest of all Oleanders; blooms all summer.

PITTOSPORUM. Very bright foliaged plants either growing compact with spreading branches or with an erect upright habit. They are very ornamental and their attractive colors combined with the fact that some of them are very free flowering, causes them to be in demand for grouping, hedges and for lawn decorations.

P. phylliraeoides. Australia. Slender, graceful habit like Weeping Willow; flowers yellow.

	EACH
Potted, 4 to 5 ft.....	\$2 00
Potted, 3 to 4 ft.....	1 50

P. tobira (Japanese Pittosporum). Low-growing shrub; dark green leaves; fragrant flowers; pure white.

	EACH
Potted, 2 to 3 ft.....	\$1 50
Potted, 1½ to 2 ft.....	1 00

P. tobira variegatum (Variegated Japanese Pittosporum). Same habit as the preceding; foliage margined white.

	EACH
Balled, 2 to 3 ft.....	\$3 00
Balled, 1½ to 2 ft.....	2 00

P. undulatum (Wavy Leaved Pittosporum). Australia. Deep green, glossy leaves; flowers intensely fragrant at night.

	EACH
Potted, 2 to 3 ft.....	\$1 25
Potted, 1½ to 2 ft.....	1 00

POLYGALA DALMAISIANA. S. Africa. A very free blooming plant, with rosy, pea-shaped flowers completely enveloping it during the entire summer. The odd color and shape of the flowers and its free blooming makes it very attractive. It will stand considerable frost.

	EACH
Balled, 2 to 3 ft.....	\$2 00
Potted, 1½ to 2 ft.....	1 00

PYRACANTHA COCCINEA (Burning Bush). Europe. A thick, thorny shrub; foliage small, rich, bronzy, glossy-green color; white flowers, followed by masses of crimson berries, persisting all winter. All of this family is very hardy and withstands the coldest weather.

	EACH
Potted, 1½ to 2 ft.....	\$1 00
Potted, 1 to 1½ ft.....	75

P. coccinea lalandii. Asia. Similar to the preceding but of more vigorous growth; berries orange yellow.

	EACH
Boxed, 3 to 4 ft.....	\$3 00
Boxed, 2 to 3 ft.....	2 50

P. crenulata (Chinese Evergreen Hawthorn). Himalayas. A beautiful shrub in spring; brilliant in winter, with masses of scarlet berries.

	EACH
Boxed, 3 to 4 ft.....	\$3 00
Potted, 2 to 3 ft.....	1 25
Potted, 1½ to 2 ft.....	75

RAPHIOLEPIS JAPONICA OVATA. Japan. Compact-growing shrub; dark green leaves; white flowers in summer, followed by black berries.

	EACH
Balled, 1½ to 2 ft.....	\$1 50
Balled, 1 to 1½ ft.....	1 25
Potted, 1 to 1½ ft.....	75

ROSEMARINUS OFFICINALIS (Rosemary). Mediterranean region. Small-growing shrub. Leaves are long and highly aromatic. Flowers lavender color and very fragrant.

	EACH
Potted, 1½ to 2 ft.....	\$0 75
Potted, 1 to 1½ ft.....	50

RHUS INTEGRIFOLIA (Sumac). California. Shrub or small tree; flowers pinkish white; fruit long and dark red.

	EACH
Potted, 2 to 3 ft.....	\$1 00
Potted, 1½ to 2 ft.....	75

TEUCRIUM FRUTICANS. S. Europe. Hardy plants, with aromatic foliage; suitable for garden or rock-work.

	EACH
Potted, 1½ to 2 ft.....	\$0 75

VERONICA (Cancerwort). New Zealand. All are very showy, free-blooming plants and succeed in any good garden soil in a sunny situation. All varieties seem to do very well in California, and they are particularly well-fitted for grouping and massing for immediate effect. Fine for low hedges. Assorted varieties.

	EACH
Balled, 1½ to 2 ft.....	\$1 50
Balled, 1 to 1½ ft.....	1 25

VIBURNUM TINUS (Laurustinus). Mediterranean region. A well-known and popular shrub, planted widely in California as a specimen plant, and very fine for hedges. Bears an abundance of white flowers in the winter. Very hardy.

V. tinus grandiflorum. Leaves and flowers much larger than preceding.

	EACH
Balled, 2 to 3 ft.....	\$1 50
Balled, 1½ to 2 ft.....	1 25

CLIMBING AND TRAILING PLANTS



Ampelopsis Veitchii.

This list comprises all of the best deciduous and evergreen climbing and trailing vines. No home is complete without a few climbing vines to shade the porches and pergolas. Also these vines may be used to splendid advantage as screens to cover unsightly views and add wonderful attractiveness as climbers on old brick walls and elsewhere. The English Ivy is especially desirable for a division fence and for rock work.

AMPELOPSIS. Hardy, deciduous and evergreen tendrill creepers; fine for covering stone walls, chimneys and fronts of houses.

A. quinquefolia (Virginia Creeper). Eastern U. S. Common American Ivy; luxuriant foliage, assuming gorgeous colors in autumn.

EACH	10
5-inch pots.....	\$0 50 \$4 00

A. veitchii (Boston Ivy). Japan. Leaves glossy-green; glorious autumnal coloring; flowers small; dense clusters of deep blue berries.

EACH	10
4-inch pots.....	\$0 50 \$4 00

A. engelmanni. Shorter joints and more rapid growth than *Quinquefolia*.

EACH	10
4-inch pots.....	\$0 60 \$5 00

A. henryana. A remarkably vigorous grower, with large, peculiarly variegated foliage.

EACH	10
4-inch pots.....	\$0 60 \$5 00

A. stricta sempervirens. Evergreen; clings well to walls; leaves smaller than *Veitchii*.

EACH	10
4-inch pots.....	\$0 60 \$5 00

ASPARAGUS MEDEOLOIDES (Smilax). S. Africa. Climbing perennial, prized for its foliage and twining habit. Flowers small, greenish-white, fragrant.

EACH	10
4-inch pots.....	\$0 35 \$3 00

BIGNONIA. Beautiful plants with large, showy flowers of the most delicate shades and colors.

B. capreolata (Cross Vine). Eastern U. S. Very vigorous grower; flowers extra large; beautiful shade of yellowish-red; deciduous.

EACH	10
4-inch pots.....	\$0 60 \$5 00

B. cherere. S. America. Flowers 4 inches long, blood-red, but yellow at base; one of the finest; evergreen; will not withstand much cold.

EACH	10
4-inch pots.....	\$0 60 \$5 00

B. grandiflora (Trumpet Vine). Japan. Strong climber; large, orange-scarlet flowers; deciduous foliage.

EACH	10
5-inch pots.....	\$0 60 \$5 00
4-inch pots.....	50 4 00

B. tweediana. S. America. A rampant grower, clinging; small, evergreen leaves; flowers canary-yellow; trumpet-shaped. Good for covering walls.

EACH	10
4-inch pots.....	\$1 00 \$7 50

B. venusta. Brazil. Vigorous grower; large, deep, orange-colored flowers; will not withstand very much cold; evergreen..

EACH	10
4-inch pots.....	\$0 60 \$5 00

BOUGAINVILLEA GLABRA SANDERIANA. Evergreen climber; deep, rosy flowers in abundance.

EACH	10
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6-inch pots.....	\$1 00
5-inch pots.....	75

CLEMATIS. Vigorous deciduous climbers; do best in light, loamy, well-drained soil.

C. jackmani. Large, intense-violet flowers; very free One of the popular varieties.

EACH	10
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5-inch pots.....	\$1 00
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C. montana (Mountain Clematis). Himalayas. Flowers white, dashed pink; very sweet; ideal for California.

EACH	10
5-inch pots.....	\$0 75

C. paniculata. Slender, vigorous climber prized for small, white, fragrant flowers. Hardy in the interior.

EACH	10
5-inch pots.....	\$0 75

DOLICHOS LIGNOSUS (Australian Pea Vine). Rampant-growing evergreen; flowers pea-shaped; rosy purple.

EACH	10
4-inch pots.....	\$0 60 \$5 00

EVONYMUS JAPONICUS RADICANS (Climbing Evonymus). Japan. Low, procumbent shrub with trailing or climbing branches, sometimes 20 ft. long. Well adapted for covering walls, rocks or trunks of trees, clinging by aerial rootlets. Leaves roundish, generally dull-green above with whitish veins. Will withstand any great extremes of cold.

EACH	10
Field-grown.....	\$0 60 \$5 00

FICUS REPENS (Climbing Fig). Japan. Evergreen climber; small, roundish, dark-green leaves; attaches itself to walls like ivy.

EACH	10
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6-inch boxes.....	\$0 75 \$6 00
4-inch pots.....	50 4 00

HEDERA (Ivy). Europe, Africa and Asia. The ivy is a very valuable plant for covering walls, trunks of trees, for screens, covering walls of cool greenhouses and for hanging baskets. It makes a handsome evergreen carpet under trees and may be used to advantage for borders of shrubberies. Its flowers are inconspicuous, but there are but few evergreen, climbing, foliage plants that will thrive under as many uncongenial conditions as it will.

EACH	10	100
5-inch pots.....	\$0 60 \$5 00 \$40 00	
4-inch pots.....	50 4 00 30 00	



Lonicera (Honeysuckle).
Very Fragrant Climbing Vine.

H. helix (English Ivy). Large, thick, shining, leathery leaves.

H. helix canariensis. Rapid and luxuriant grower. Leaves large, bright green. A fine variety.

H. helix maculata major. Large leaves. spotted and striped yellowish-white.

H. helix maderiensis. Handsome and distinct, leaves large, light green.

H. helix maderiensis variegatus. Form of the above, except that leaves are margined and blotched creamy shades.

JASMINUM (Jasmine). These are very interesting plants. Very graceful, and their mass of showy flowers which in some varieties push out the full length of the stems, makes them very attractive.

	EACH	10
6-inch boxes.....	\$1 00	\$7 50
5-inch pots.....	75	6 00
4-inch pots.....	60	5 00

J. gracillimum. Borneo. New evergreen Jasmine; clustered flowers pure white.

J. grandiflorum (Catalonian Jasmine). India. Free-blooming; flowers pure white, star-shaped, fragrant; foliage delicate; evergreen.

J. nudiflorum (Naked Flowered Jasmine). China. Drooping branches; enveloped with bright yellow flowers in winter before leaves appear.

J. officinale (True Jasmine or Jessamine). India. Slender-growing vine; produces abundance of snowy-white, fragrant flowers all summer. The foliage is glossy and clean.

J. primulium. China. New variety; same as above, but flowers are fully double the size.

J. revolutum (Italian Yellow Jasmine). Asia. Vigorous; rich yellow flowers all summer. Leaves thick, glossy and evergreen.

LANTANA SELLOWIANA (Weeping or Trailing Lantana). S. America. Pretty trailing variety; flowers rosy lavender, produced freely.

	EACH	10
Gallon cans.....	\$0 75	\$6 00
5-inch pots.....	60	5 00

LONICERA (Honeysuckle). Comprise a number of well-known, hardy, climbing vines.

	EACH	10
Gallon cans.....	\$0 75	\$6 00
5-inch pots.....	60	5 00
4-inch pots.....	50	4 00

L. aureo reticulata (Variegated-leaved Honeysuckle). Japan. Flowers yellow, fragrant; leaves netted and veined clear yellow; evergreen.

L. flava (Yellow Coral Honeysuckle). Eastern U. S. Flowers pale yellow, corolla yellow marked, purplish outside; abundance of red berries in fall.

L. gigantea superba. S. Europe. Very vigorous grower, with large, downy leaves.

L. halliana japonica (Japanese Honeysuckle). Rampant; evergreen climber, dark green, ovate leaves; flowers fragrant, white, changing yellow.

L. periclymenum (Woodbine Honeysuckle). Asia. Flowers yellow, blotched red above; very fragrant; blooms all summer.

L. semperflorens (Red Coral Honeysuckle). A strong, rapid grower and continuous bloomer; flowers scarlet.

L. standishi (Chinese Honeysuckle). Half evergreen, flowers white and pink; fragrant.

MUEHLENBECKIA COMPLEXA (Wire Vine). New Zealand. Very rapid and showy climber; flowers small, thick, waxy white, followed by transparent, glistening, icicle-like fruits.

	EACH	10
6-inch boxes.....	\$0 75	\$6 00
4-inch pots.....	50	4 00

PASSIFLORA (Passion Vine). The Passion Vines are all strong-growing evergreen climbers with large, yellowish-green leaves and brilliantly colored flowers, some varieties maturing their fruits when grown out-of-doors and adding to the brilliancy of the plant. They are of exceedingly rapid growth and are well adapted for growing on old tree stumps, covering walls or buildings. They always excite admiration when in bloom. In colors red, pink and blue.

	EACH	10
5-inch pots.....	\$0 75	\$6 00

PERIPLOCA GRAECA (Silk Vine). S. Europe. Of very rapid growth; deciduous, dark green, glossy leaves; purplish brown flowers. A grand climber. Pods filled with silky seeds.

	EACH	10
5-inch pots.....	\$0 50	\$4 00

PLUMBAGO CAPENSIS. Flowers azure-blue, color most unique.

	EACH	10
Gallon cans.....	\$0 75	\$6 00
5-inch pots.....	60	5 00

PUERARIA THUNBERGIANA (Kudzu Vine). Japan. Immensely vigorous; stems grow 60 ft. in one season. Flowers purple, fragrant, pea-shaped.

	EACH	10
4-inch pots.....	\$0 60	\$5 00

SOLANUM JASMINOIDES (Potato Vine). S. America. Climbing perennial. Rapid grower; dark green leaves; flowers white, yellow center.

	EACH	10
Gallon cans.....	\$1 00	\$7 50
4-inch pots.....	60	5 00

SOLLYA HETEROPHYLLA (Australian Blue Bell). Hardy evergreen climber producing numerous brilliant, blue, bell-shaped flowers one-half inch long.

	EACH	10
5-inch pots.....	\$0 75	\$6 00
4-inch pots.....	60	5 00

TECOMA. Beautiful, showy climbing plants, resembling Bignonias.

	EACH	10
6-inch box.....	\$1 00	\$7 50
5-inch pots.....	75	6 00
4-inch pots.....	60	5 00

T. australis. Australia. Rapid grower; elegant, thick, green foliage and white flowers in greatest profusion make it very desirable.

T. capensis (Cape Honeysuckle). S. Africa. Flowers orange-red, about 2 inches long, in terminal racemes.

T. jasminoides (Australian Bower Plant). Bright, glossy leaves; white flowers shaded deep purple at throat.

T. mackenzii. S. Africa. Dark green leaves, funnel-shaped flowers; light pink, striped red.

WISTARIA. Japan and China. One of the most graceful of climbers; a quick, rapid, vigorous grower; it is surpassed by no plant for covering walls or piazzas, and this, combined with its rich, pendulous panicles of pea-shaped flowers appearing in the spring in great profusion, renders this one of the most desirable of deciduous climbing plants.

W. chinensis alba (Chinese White Wistaria). Chinese variety; pure white.

	EACH	10
5-inch pots.....	\$1 00	

W. chinensis (Chinese Purple Wistaria). Flowers pea-shaped, in pendulous clusters a foot long.

	EACH	10
5-inch pots.....	\$1 00	

W. multijua alba (Loose Clustered Wistaria). Japanese. Flowers white, fragrant, in long racemes.

	EACH	10
5-inch pots.....	\$1 00	

W. multijua pink (Pink Flowering Wistaria). Japanese. Same as preceding, but pink flowers; the racemes will average from two to four feet long; very rare.

	EACH	10
5-inch pots.....	\$2 00	

W. multijuga purple. Japanese. Racemes longer and looser than Chinensis; flowers smaller.

	EACH	10
5-inch pots.....	\$1 50	

PALMS

No plants are more decorative for indoors or out. The smaller and more tender varieties "set off" interior decorations, while the larger and hardier varieties are invaluable for garden, lawn and avenue. We carry a large stock in boxes, tubs and cement pots, which have been taken from the open ground and are well established. These can be used either for porch decorations or planted out in the open. Such plants give an immediate effect, and never go back, when transplanted.

All marked with an asterisk (*) are for indoors and conservatory decoration.

COCOS AUSTRALIS (Pindo Palm). Paraguay. Slow-growing, graceful, hardy; leaves silvery green. This variety is very hardy. Fine for small gardens or lawns.

	EACH
Boxed, 10 to 12 ft.	\$20 00
Boxed, 8 to 10 ft.	15 00
Tubs and boxes, 6 to 8 ft.	10 00
Boxes and pots, 5 to 6 ft.	8 00
Boxes and pots, 4 to 5 ft.	6 00
Boxes and pots, 3 to 4 ft.	5 00

CYCAS REVOLUTA (Sago Palm). Japan. A magnificent plant; many beautiful, pinnate, dark-green leaves, uncurling from the top of the stem like ostrich feathers. These palms are grown in pots and tubs only; quotations are based more on the number of fronds or leaves than on the size of the container.

	EACH
14-inch boxes.	\$25 00
12-inch tubs.	\$15 00 to 20 00
10-inch pots.	12 00 to 15 00
8-inch pots.	6 00 to 8 00
6- and 7-inch pots.	4 00 to 6 00
4- and 5-inch pots.	2 00 to 3 00

ERYTHEA. These beautiful and very hardy plants have never received the attention they are entitled to, no doubt because they are so little known. They are very hardy, graceful, and are worthy of wide dissemination.

	EACH
Boxed, 8 to 10 ft.	\$15 00
Boxed, 6 to 8 ft.	10 00
Balled, 4 to 5 ft.	4 00
Balled, 3 to 4 ft.	3 00
Balled, 2 to 3 ft.	2 00

E. armata (Blue Palm). Lower California. One of the most graceful and striking of Fan Palm; color of leaves gives the plant a silvery-blue hue. Quite distinct and hardy.

E. edulis (Guadalupe Island Palm). Like California Fan Palm; stem slender, graceful; leaves deep green, no filaments.

JUBAEA SPECTABILIS (Wine or Honey Palm). Chile. It is one of the hardest of palms and looks something like a Phoenix, but is more spreading and of a dwarfer habit. It is readily distinguished by the pinnae, which revert to the petiolar stalk and which are also irregularly arranged, giving the plant a feathery appearance. Truly a magnificent palm, and one always commanding admiration. Makes a very massive trunk at maturity.

	EACH
Cement pots, 4 to 6 ft.	\$7 50
Tubs and boxes, 3 to 4 ft.	6 00
Tubs and boxes, 2 to 3 ft.	5 00



Cycas Revoluta—Sago Palm.



Trachycarpus Chamaerops—Windmill Palm

PHOENIX. It is needless to say that there are few palms which have done more to add to the semi-tropical appearance of our landscapes than this majestic family of palms. Their massive trunks with their ascending, arching and pendulous pinnated leaves causes them to excite admiration wherever seen.

	EACH
Boxed, 6 to 7 ft.	\$10 00
Boxed, 4 to 6 ft.	7 50
Boxed, 3 to 4 ft.	4 50
Balled, 3 to 4 ft.	3 00
Balled, 2 to 3 ft.	2 00

P. canariensis (Canary Island Palm). Handsomest of hardy palms; leaves pinnate, deep, dark green; effective for lawns.

P. dactylifera (Fruiting Date Palm). Arabia. Trunk slender; leaves decidedly upright; silvery green. Produces the date of commerce.

TRACHYCARPUS (*Chamaerops*). Hardy, fan-leaved palms, with dark, hairy trunks, and very slender leaf stalks.

*Erythea Edulis.*

T. excelsis (Windmill Palm). Asia. The hardest we have; leaves fan-shaped, deeply cut, very symmetrical.

	EACH
Cement pots, 3 to 4 ft.....	\$5 00
Cement pots, 2 to 3 ft.....	3 50
Balled, 1½ to 2 ft.....	2 00

T. humilis (Dwarf-Growing Fan Palm). Mediterranean region. Divided fan-shaped leaves; stems thorny. One of the hardest.

	EACH
Cement pots, 3 to 4 ft.....	\$6 00
Cement pots, 2 to 3 ft.....	4 00
Balled, 1½ to 2 ft.....	2 00

WASHINGTONIA. Tall-growing, fan-leaved varieties, native of California and Northern Mexico.

	EACH
Balled, 4 to 5 ft.....	\$4 00
Balled, 3 to 4 ft.....	3 00
Balled, 2 to 3 ft.....	2 00

W. filifera (California Weeping Palm). Trunk attains diameter of 4 ft.; leaves fan-shaped, with numerous divisions and whitish filaments; petioles stout, smooth, 5 to 6 ft. long, margined with hooked spines.

W. robusta gracilis or sonora. California. A distinct type; leaves drooping, much greener than preceding and with fewer white filaments. Petioles more heavily spined; much more rapid grower than *W. filifera*; trunk much more slender than that variety.

AGAVES, DRACAENAS, YUCCAS AND BAMBOOS

AGAVE AMERICANA (Century Plant). Tropical America. The well-known "Century Plant"; glaucous green leaves. Not difficult to grow, sandy loam being the best soil to use.

	EACH
Potted, 1 to 1½ ft.....	\$1 00

DRACAENA AUSTRALIS (Cordyline Australis). D. Indivisa. New Zealand. Fine avenue and street trees for the coast; do not do well in the interior.

	EACH
Tubs and boxes, 3 to 4 ft.....	\$4 00
Tubs and boxes, 2 to 3 ft.....	3 00

YUCCA FILAMENTOSA (Adam's Needle). Southeast U. S. Compact grower; dark green leaves and majestic spikes of yellowish-white flowers.

	EACH
Boxed, 2 to 3 ft.....	\$1 50
Potted, 1 to 1½ ft.....	1 00

BAMBUSA (Bamboos).

Very useful and ornamental; they seem to do well in all reasonably good soils, and should be planted by every farmer. Decorative house plants, fine for lawn or groupings. Whenever used, they should be given warm, rich soil. All varieties respond quickly.

Strong Growing Varieties. Dwarf Grown Varieties.

	EACH
8-inch box, 4 to 6 ft.....	\$1 50
8-inch box, 3 to 4 ft.....	1 00

DECORATIVE, BEDDING AND BORDER PLANTS

LANTANAS. The various varieties we offer of these fine bedding plants are the new and improved sorts. The flowers are much larger than the older sorts and the plants have a more compact growth. Their usual height is about 12 inches.

	EACH	10
4-inch pots.....	\$0 40	\$3 00

PHORMIUM TENAX (New Zealand Flax). Large, erect, dark green leaves, with narrow, reddish brown margin.

	EACH
10-inch box, 2 to 3 ft.....	\$1 50

ROMNEYA COULTERI (Matilija Poppy, California Tree Poppy). Adapts itself to a wide range of locations. One of the most beautiful of the numerous list of native California plants. The petals are of the purest white, the stamens in the center being rich yellow. Very fragrant and blooms continuously all summer.

	EACH
Potted strong plants.....	\$1 00

SALVIA (Sage). Handsome, rapid-growing; blooming all summer. A genus comprising hundreds of varieties. Our collection comprises a few of the best sorts.

	EACH	10	100
4-inch pots.....	\$0 50	\$4 00	\$35 00

SANTOLINA INCANA (Lavender Cotton). Stands extreme drought and cold; valuable for borders; foliage silvery.

Flats.....	\$3 50 per 100 plants
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ZOYSIA TENUIFOLIUM (Korean Velvet Grass). A rapid-growing grass that can be grown with very little water and requires no mowing. Will grow well in sun or under the dense foliage of evergreen trees. It resembles very much a piece of green velvet, hence the name. Very valuable for rockery work.

Flats.....	\$3 50
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*Romneya Coulteri—California Tree Poppy.*

ROSES



Single White Cherokee Roses.

Among all the flowering shrubs that grace the garden or add to the beauty of hall or conservatory, none can compare with the rose. Of diverse color and character of foliage, of endless design and color of bloom, it lends itself to a wider range of decoration than any other single group of plants, being equally desirable as pot plants, for garden culture and for cut flowers. When to these qualifications are added ease of culture and quick and ample responses in flowers, it is explained why the rose has been aptly termed "The Queen of Flowers." In our collection of flowering and ornamental shrubs, it occupies first place.

Budded Roses

Budded roses grow far more vigorously than those on their own root and are longer lived; so that the slight additional expense incurred to begin with, is more than compensated in having superior plants. The only possible objection—claimed by some—is that the plants are apt to sucker. We avoid this by dis-budding the stock, making this possibility nil. As a further preventative we recommend that our customers plant the junction of the bud with the stock two or three inches under ground. If planters will observe to do this, the plants will make a better root system, and all possible difficulty of suckering will be removed.

THE RIGHT BEGINNING

It is impossible to grow a rose garden of fine large thrifty bushes with an abundance of blooms by starting with small plants, which have been previously started or grown under glass, or weak imported plants. To have satisfactory success you must have fine thrifty field grown plants to start with. Do not form the opinion that California field grown roses are tenderer than plants grown in cold climates, as this opinion is a decided mistake. Nowhere in the world can better rose plants be grown than in the coast counties of California. Being thoroughly hardy and vigorous, with well-ripened wood and a well-branched root system, these plants are planted everywhere with equal success with plants grown under the most favorable conditions in the colder climates, and experiments have shown that in many cases with far better results.

SITUATION

The ideal situation is high ground, well sheltered from the prevailing wind. Along the coast it is not best to plant roses where they will be shaded by large trees or hedges. In the warmer interior valleys of California and in similar climates this condition is not objectionable, but instead is favorable, provided the shade is not too dense, permitting the plant to receive the sunshine a portion of the day.

SOIL

A good heavy loam soil is best for roses. Gravel soil is far from being ideal for roses, but it is better than very sandy soil. (In a poor heavy clay or rocky soil, it will pay to dig the hole extra large and two feet deep. Wheel the dirt away entirely. Fill the hole with six to twelve inches of well-rotted manure at the bottom and good rich soil to the top.) The ground should be spaded thoroughly and if any well-rotted manure is available, it should be worked well into the soil. Under no circumstances use fresh or new manure. It is best to prepare the ground some time before planting if it is possible to do so.

PLANTING DISTANCES

This depends upon the type of rose. Plant the strong Hybrid Perpetual Roses three feet apart. Hybrid Teas and Teas about two and one-half feet. The Polyantha type are more dwarf in their habits and permit of being more closely planted.

PLANTING

The best season of the year for planting roses on the Pacific Coast and in the southern states is from January 1st to March 15th, with the recommendation in favor of early planting. In the northern states planting should be done during October and November in the Fall, and March and April in the Spring, but should be ordered some time in advance.

When plants are received, unwrap them with the greatest care; do not allow the roots to be exposed to the sun or drying winds. If for any reason the roots are dry, soak in water for a few hours and then bury in the earth for a few days. If the stems are also dry, bury the whole plant in moist earth for three or four days, and they will again show life and vigor. Too much stress cannot be given to the importance of properly trimming the rose at planting time. Prune the top, cutting back the branches at least two-thirds. Thin out, leaving not more than three branches to form the head. The roots should also be cut back one-half and all bruised roots removed. In planting, the same care should be observed as with any tree or plant. Dig a hole large enough to receive the roots and dip them in thin mud before planting. When planting, point the roots down, slanting to the side of the hole. Press the soil firmly around the roots or settle around the plant by watering freely.

Do not forget these points, but follow this advice if you want good strong plants.

PRUNING

No definite rule can be laid down for pruning roses except that Teas and their allied families do not require as severe pruning as the Hybrid Perpetuals and others of equally vigorous growth. There is one fast rule, however, and that is never to allow roses to go unpruned. The best time is from December 15th to March 1st. The first winter after planting, thin to three main shoots and cut these back at least two-thirds. In after years with the frame-work branches established, the laterals should be thinned out to prevent overcrowding and those allowed to remain should be cut to spurs of about four buds each. If this method is followed regularly each season, a properly pruned plant will have the shape of a deer's antlers. With climbers the framework branches should be trained up against the wall in the shape of a fan, not leaving more than three or four, and these should be cut back severely the first two seasons to promote vigor and sturdiness of growth. In after years shorten in the laterals and thin out sufficiently to prevent overcrowding, otherwise the plant will be a mass of dead wood and twisted branches, and its vigor will become seriously impaired. If you fail to prune and thin out you will have an over-abundance of small flowers.

When the roses have stopped blooming in the early summer the faded buds should be cut and the plants given a light pruning, or more correctly, a pinching back, which will have the effect of making them respond with a bounteous bloom in the Summer and Fall.

FERTILIZING

Roses are often found blooming under adverse conditions and with little care, but perhaps no plant responds more quickly to "feeding" than the rose. Manure from the cow barn is the best fertilizer you can use. Other manures may be used with good results when the former cannot be conveniently obtained, but **never** let any **green** or **fresh** manure come in direct contact with the roots. Use it only as a top-dressing. Roses need fertilizer most when blooming. When the flower buds begin to swell an application of liquid manure will give immediate and pleasing results.

Poultry droppings, slacked lime or a handful of ground bone thrown on the ground around the plants, letting the rain take it into the soil, is effective.

Do not become over-enthusiastic during the first year, in your efforts to force bloom by giving your plants too much fertilizer. Many plants are killed by manuring them too freely the first season after planting.

WINTER PROTECTION

In the mild climate of the Pacific Coast and extreme south no protection is needed for even the tenderest Teas and Hybrid Tea sorts. In colder climates for tender sorts, we advise mounding up the dirt around the base of the bush about six or eight inches, but do not do this until after heavy frosts or first freezing weather. In addition a fork full of straw manure should be forked well into the branches. To make this easier, trim the canes back to within fifteen inches of the ground.

Also a good bunch of leaves or straw on the ground around the bushes weighted down to prevent blowing away will help to prevent injury when weather gets very cold.

VARIETIES

No attempt is made to list all the known varieties. By observation and testing we select and list only such varieties as have merit and are the best of the class, taking into consideration color, habit and other desirable points.

It has been our purpose to do this in a thorough manner, and we offer a list from which may be selected all the colors and shades; the most fragrant; the best bloomers; and the hardiest, strongest growers, to completely plant the garden of the amateur, or the expert.

CLASSES

Hybrid Perpetual. The American Beauty is a good example of this class. Flowers are large and durable with strong fragrance. Stems are usually long and unbranched.

Hybrid Tea. Originated from crossing the Tea with the Hybrid Perpetual class, retaining the fragrance of the Hybrids and the profuse blooming qualities of the Teas. Much hardier than the Teas.

Noisette (Champney). All climbers. Colors, yellow and white; none red or pink. All are strong rapid growing varieties of which the Marechal Niel is an ideal type.

Polyantha. Flowers small and appear in large clusters. All of the climbers, with the exception of Climbing Mlle. Cecile Brunner, bloom only in the Spring.

Teas. Perfectly at home in California; need protection in other states during winter. Very dainty, beautiful tea-scented flowers; with glossy foliage the rule.



A Glimpse of Our Rose Blocks Taken When Plants Were Three Months Old.



A Well Pruned Rose Bush with its Branches Properly Distributed to Promote not only a Vigorous Development but Profusion of Flowers During the Season.

In addition to these we list a few of other classes. Abbreviations opposite each variety in the following list indicate the class to which it belongs.

Ban., Banksia; Ben., Bengal; Bour., Bourbon.
H. B., Hybrid Briar; H. N., Hybrid Noisette.
H. P., Hybrid Perpetual; H. T., Hybrid Tea.
Misc., Miscellaneous; M., Moss; N., Noisette.
Poly., Polyantha; Pr., Prairie; Per., Pernetiana;
Rug., Rugosa; T., Tea; Wich., Wichuriana;
H. W., Hybrid Wichuriana.

Five plants of one or five varieties sold at the ten rate.
Starred varieties are climbers.

Tree Roses

Tree Roses, known also as Standard Roses, are very imposing when planted among Shrubbery and occupy very little ground space.

These Tree Roses are produced by budding on a tall stem about three feet from the ground; the variety desired. We select the most vigorous and hardiest sorts, keeping in view the selection of best colors and most constant bloomers.

This careful selection on our part is making the standard rose more popular every year, and to meet this ever increasing demand, we are growing large blocks of standard roses, while several years ago we grew only a few. A well-grown trained standard rose tree is a beauty to behold, and several planted together, or grouped, are very attractive. There are many places on nearly all grounds, even on city lots, where standard roses may be planted with splendid effect.

Proper pruning of the standard rose is very essential. Shorten in the head and thin out the plant, causing it to become symmetrical, and it will respond with a wealth of bloom which is surprising. The first two seasons wrap the stem with paper or burlap to prevent sunburn, and cut away all suckers appearing below the crown.

Descriptions may be found under Bush Roses on following pages, with exceptions as noted.

	EACH	10
Price.....	\$ 200	\$15 00

Baby Rambler
Duchess de Brabant—
brilliant rosy pink
Frau Karl Druschki
Gen. McArthur
Grus An Teplitz
Improved Rainbow
K. A. Victoria
Lady Hillingdon
Liberty—crimson scarlet

L'Idéal—rosy pink
Lyon
Mad. C. Testout
Papa Gontier
Perle des Jardins
Rhea Reid
Sunburst
The Bride—pure white
Ulrich Brunner

Newest in Roses

	EACH	10
Price.....	\$1 50	

Los Angeles (H. T.). Produced in California in 1917. Color is luminous flame pink toned with coral and shaded translucent gold at the base of petals. The buds are long and pointed and the rose is intensely fragrant. It is a strong healthy grower, and has good foliage.

Late Introduction

	EACH	10
Price.....	\$1 25	\$10 00

Hoozier Beauty (H. T.). In color it is crimson scarlet with dark shadings, and the petals are of a velvety texture. The buds are long and sweet scented. It is as fragrant as the Richmond. The flowers are very attractive, and are borne on heavy strong canes. It is a splendid garden variety.

Scarce Varieties

	EACH	10
Price.....	\$1 00	\$8 00

Frances Scott Key (H. T.). A strong growing variety that has proven very valuable for garden planting. The flowers are double and well formed, and of great substance. In color it is bright red. It is unequalled as a cut rose.



Belle Siebrecht.

Mrs. F. W. Vanderbilt (H. T.). The blooms are a deep orange red shaded bronzy apricot red and are very double, medium size and delightfully fragrant. This promises to be one of the best flowers for bedding purposes. On account of its variation of colors, it is very popular with planters.

Rayon D'Or (H. T.). A vigorous grower, of fine branching habit, with fine bronzy green foliage and oval-shaped buds; tinged coppery orange. It is not only very attractive in this form, but equally so when the flowers are expanded, on account of its fine substance and magnificent golden yellow coloring.

General Collection

	EACH	10	100
Price	\$0 75	\$6 00	\$50 00

Agrippina (Ben.). Fine, rich crimson; moderately double; fine in bud; a valuable bedding variety; is not affected by the heat and blooms profusely during the entire summer; as a hedge rose it cannot be surpassed.

American Beauty (H. P.). Color rosy crimson, exquisitely shaded and very handsome; extra large full flowers, exceedingly sweet; makes magnificent buds; is a constant bloomer and a grand forcing rose.

Arthur R. Goodwin (Per.). This rose is considered one of the best of the Pernetiana type. It has a superb combination of colors being coppery orange, red, and as the flowers expand, poppy to salmon pink. The flowers are large and full. Foliage heavy.

Baby Doll (Poly.). Also known as Tiptop. In color it is golden yellow tipped with clear cerise. The foliage is narrow and long, and of a deep, glossy green. It is valuable for corsage wear and for dainty florist work. It is one of the best of the small baby roses. Its unique coloring makes it very attractive.

Banksia, Double White (Ban.). The flowers are pure white, small and violet scented; very double, perfectly formed, and are borne in large clusters. Branches long and thornless.

***Beauty of Glazenwood (Misc.).** San Rafael rose. A vigorous fast climber sending forth a mass of bloom in the early spring, being a combination of copper, carmine and salmon yellow. When in full bloom, it is a sight not soon forgotten. Entirely distinct from Gold of Ophir.

Belle Siebrecht (H. T.). A superb rose; the buds are beautifully formed, of long tapering shape and when half blown the petals reflex in a graceful manner; the flowers have great substance and the petals are of heavy texture; color imperial pink.

Betty (H. T.). Introduced by Messrs. Dickson & Sons, Belfast, Ireland. It stands in the same class as the Belle Siebrecht and Killarney, with the exception that it is a more robust grower, and is truly of a unique color, being of a ruddy gold, overspread with golden yellow. It is deliciously perfumed, extremely large and of glorious form, and blooms continuously from early spring till late in the fall.

Billard et Barre (T.). This rose is one of the late introductions from Europe. The flowers are a rich, golden, orange color, gobular in form. It is used as a cut flower, and is superb when half-blown. On account of its being a climber, it is highly suited for porch and pergola planting. One of the best of the late introductions.

Black Prince (H. P.). Intensely dark crimson approaching black. Flowers are cup-shaped, large and full.

British Queen (H. T.). The flower is of the purest white with a slight tinge of pink which disappears as the flowers expand. In type it is between Frau Karl Druschki and the White Maman Cochet with a tea rose form. The petals are somewhat reflexed and the rose is very fragrant. It is considered one of the best of the late introductions in white blooming roses, and is valuable for massing and bedding purposes.

***Caroline Goodrich (H. P.).** This rose is finely formed; very double flowers; fragrance most delicious. In color it is light red, very fragrant. On account of its long growth, it makes a fine climbing variety; can be used on porches and pergolas.

Chateau de Clos Vougeot (H. T.). The color is varied from a deep velvety scarlet shaded to bright red and then to dark velvety crimson, as the flowers expand. Its fragrance is very pronounced.

***Cherokee, Single (Misc.).** A beautiful pure white rose, large, clear white, single flowers, full of bright yellow stamens, giving it a most unique appearance; foliage dark rich green. A grand climber.

Clara Watson (H. T.). A vigorous grower sending up strong canes bearing heavy foliage. The blooms are well formed and are pearly white, center tinted pale peach. A very free bloomer.



***Climbing Perle des Jardins.**

***Climbing American Beauty (Wich. Hybrid).** A seedling of American Beauty, Wichuriana and Tea Blood mixed. In color it is a glowing crimson, true American Beauty color. The flowers are large, fragrant and foliage very heavy; free from mildew, and one of the best late introductions in climbing roses.

***Climbing Belle Siebrecht (H. T.).** One of the very best climbers in our list. In color it is a solid cerise pink. The flower is beautiful in bud, and when full blown. Very fragrant. A splendid climbing variety.

***Climbing Caroline Testout (H. T.).** This most wonderful rose is identical with that most beautiful and very free flowering rose, Madam Caroline Testout, except that it is a very vigorous climber, canes making a growth of 12 feet in a season and an inch through. No garden should be without this magnificent rose. Clear pink.

***Climbing Kaiserin Augusta Victoria (H. T.).** One of the very best climbing white roses; a strong and rapid grower, making shoots fifteen feet in a season; flowers superb, of good texture and substance, extra large, deep and full, very double, and are produced on long stiff stems; buds long and pointed; deliciously fragrant.

***Climbing Mlle. Cecile Brunner (Poly.).** An exact counterpart of the great favorite bush rose of the same name, except that it is a very much stronger grower. Flowers perfectly, double, rosy pink, petals in bud daintily reflexed. Delightfully fragrant and in every respect a most exquisite rose. A vigorous climber.

***Climbing Papa Gontier (T.).** A vigorous grower with beautifully formed buds. The bush form of this very popular rose is very well known; this new rose possesses all its merits, flowers of exquisite substance, color rosy crimson, beautifully formed buds, and with it all a wonderfully vigorous grower and climber.

***Climbing Perle Des Jardins (T.).** A strong growing form of its parent Perle des Jardins. In color, it is a deep golden yellow.

***Climbing Wooton (H. T.).** Velvety red. A sport from the famous rose, Souvenir de Wooton, and identical with it, except that it is a strong, rampant climber, producing in wonderful profusion, superbly formed flowers, with thick leathery petals, which are deliciously scented; as a climbing rose it will rank among the best.

Dean Hole (T.). Silvery carmine, with salmon shadings. The flowers are large, of great substance and perfect in form, both as a bud and when fully expanded. A wonderful rose.

***Dorothy Perkins (Wich.).** Clear shell-pink flowers profusely borne in numerous clusters full and double, with crinkled petals. Leaves bright green and very persistent. A grand rose for training or for ground work.

Duchess of Sutherland (H. T.). It is a vigorous, upright grower, producing flowers, bright rose pink in color. The buds are long, pointed and the flowers are very double.

Edward Mawley (H. T.). This variety is considered one of the best of the new roses. The flowers are large, dark velvety crimson and is a continuous bloomer; a splendid dark rose for garden culture.

Etoile de France (H. T.). Received a gold medal in France and the introducer, J. Pernet Ducher, the originator of so many grand roses claims that it is one of the finest roses ever sent out. The flowers are very large and borne on good long, stiff stems; color a lovely shade of clear, red-crimson velvet; very fragrant and keeps well. A superb rose and sure to be a great favorite.



Betty



Rosalind Or.

Frau Karl Druschki or Snow Queen (H. P.). Of all the roses of recent introduction none have created the sensation that this one has. It is of German origin and a remarkably vigorous grower. Its flowers are very large, perfect in form, of the purest snow-white color, with large shell-shaped petals. A very free bloomer. It must be seen to be appreciated.

Gen. Jacqueminot (H. P.). Bright shining crimson, very rich and velvety, exceedingly brilliant and handsome; makes magnificent buds; one of the best for open ground and for forcing.

General McArthur (H. T.). This is probably the greatest favorite of all the garden roses. The flowers are a vivid crimson scarlet and retain their brilliancy when the flowers are fully expanded. Very highly perfumed and practically free from damage by mildew. This we consider one of the best roses in our lists.

Geo. Arends (H. P.). "Red Frau Karl Druschki." The flowers are large, bright red carmine, shaded to delicate rose. On account of its rapid growth it can be trained up as a climber.

Geo. C. Waud (H. T.). Glowing orange-vermilion. Flowers large, full and perfectly formed, with high, pointed center. Stems long, carrying flowers erect. Fragrant. A very fine variety.

Gruss An Teplitz (Bour.). There is positively no better rose grown for hedge purposes than the Gruss an Teplitz. It is a vigorous grower and when properly trained makes an almost compact hedge. The flowers when first opened are rich dark crimson, changing to velvety fiery red. It is a strong grower and blooms continuously, and is delightfully fragrant.

Harry Kirk (H. T.). Color deep sulphur-yellow with a lighter shade on the edges of petals. Flowers large, perfect form, buds long.

Heinrich Munch (H. P.). "Pink Frau Karl Druschki." It has every characteristic of the Druschki except in color it is pink and the petals are beautifully reflexed; a splendid cut flower rose.



Lady Hillingdon.



General McArthur.



Climbing Caroline Testout.

Helen Gould (H. P.). Not only ourselves, but the general public believe this rose to be one of the best ever-blooming roses ever introduced. Its color is quite attractive, being a soft intense carmine, with shades of cerise and sulfurino, very much the color of American Beauty. Blooms very freely.

Hugh Dickson (H. P.). A vigorous grower, with handsome foliage; sending up strong, vigorous canes surmounted with blooms of a brilliant crimson, shaded scarlet; very large and of exquisite form with large smooth petals. A most beautiful rose.

Improved Rainbow (T.). It is entirely distinct and far superior to Rainbow. The Improved Rainbow is penciled with brightest Gontier color, every petal in every flower and base of petals of a bright amber color, making a very distinct and charming rose.

Irish Elegans (H. T.). This is one of the most charming of all the large flowered Hybrid Tea Roses. The flowers are often five inches across. Its long shaped buds are of a bronzy orange scarlet which assumes an apricot shade as the flowers expand, and is an exquisite rose for indoor decorations.

Irish Fireflame (H. T.). The color is old gold or coppery yellow flamed with ruddy crimson. Its beautiful buds remain in shape a long time, having great substance. They are borne on long stems, and on account of its exquisite color it is considered one of the best of forcing roses.

Jonkheer J. L. Mock (H. T.). This stands out as a leader. It is fine in bud, being full and well formed, and is equally good when it opens up. In color, it is a mixture of bright red and salmon pink. As a grower it is among the best.

Kaiserin Augusta Victoria (H. T.). This beautiful rose blooms continuously. It is pure white and its petals are large and of the very best substance. It is one of the finest roses for corsage wear. A steady grower and blooms regularly from early spring till late in the fall.

Killarney (H. T.). A vigorous grower with so many good points in its favor that it is regarded as a standard. Color flesh shaded white, suffused pale pink; the blooms are large, the buds very long and pointed; petals very large and of great substance; one of the finest for massing.



Climbing K. A. Victoria.

Killarney Brilliant (H. T.). Similar in growth to its parent Killarney. The colors of the bloom are several shades darker than the Killarney, being a beautiful shade of brilliant red.

Lady Hillingdon (T.). A grand rose for either pot work or garden decoration. Blooms continuously, buds very long, with a most pleasing shade of orange yellow. Particularly fine in the bud state.

Lady Ursula (H. T.). The flowers are large and of a perfect form; delicately scented, and of beautiful pink color.

La France (H. T.). Silvery pink. One of the finest of roses; the color is a most lovely rose, with silvery luster; it is a constant bloomer, and very sweet-scented.

***Lamarque (N.).** The flowers are pure white, shaded sulphur-yellow center; and are borne in large clusters. It is a rampant climber and does well in the interior valley.

Lieutenant Chauré (H. T.). Vigorous grower; long buds borne on long stems. Velvety crimson, shaded garnet.

Lyon (Per.). The color of this rose is shrimp pink at end of petals; center coral red or salmon shaded with chrome yellow, highly perfumed. It is rather a willowy grower.

Mad. Abel Chateney (H. T.). A strong grower and a perpetual bloomer. The blooms are large and beautiful in bud, and the petals are re-curved. The color is rose pink, tinged with salmon. One of the most attractive of all the roses we are growing.

Maman Cochet (T.). Rosy pink. One of the finest roses introduced from France; a vigorous grower, with beautiful foliage; the bud is long and pointed, borne on long, stiff stems; color deep rose pink, the inner petals being a silvery rose, shaded and touched with golden yellow; a beautiful rose.

***Marechal Niel (N.).** A strong rapid climber that bears beautiful golden yellow buds, when in bloom in great profusion. Has a fragrance that is peculiar to this rose alone. It is a general favorite in climbing roses, and is the finest of all the yellow varieties.

Mildred Grant (H. T.). Color is pearly white, petals edged pink. Blooms size of Paul Neyron. One of the best of the late introductions.

Mlle. Cecile Brunner (Poly.). Salmon-pink with deep salmon center, borne in clusters, very small, full and delicately scented; admirable in bud and open flower; a very profuse bloomer.

Mme. Edouard Herriott. Daily Mail (Per.). A very strong vigorous grower with spreading, branching habit, and of glossy green foliage. The buds are coral red, shaded yellow at the base. The flowers are in size semi-double and when full blown is a superb coral red shaded with yellow and bright rosy scarlet.

Mme. Caroline Testout (H. T.). Clear pink. One of the best Hybrid Tea roses up to date. It is clear pink and there is nothing in the rose line that can approach it in color; the flower is as large as Baroness Rothschild and as free as La France; should have a place in every collection.

Mme. Leon Pain (H. T.). Silvery salmon, center orange-yellow. Buds pointed; flowers large. Free bloomer. Excellent bush with dark glossy foliage.

Mrs. Chas. Russell (H. T.). Sometimes called the Pink American Beauty. This is a strong, healthy grower, the blooms are large, full, having a beautiful shade of rosy pink. A splendid variety for forcing, also for garden planting.

Mrs. Geo. Shawyer (H. T.). A late introduction that rivals Clara Watson. The rose is a beautiful pink or peach pink tinged with white as the flowers expand. The flowers are large, well-formed, the petals good substance; foliage leathery. It is a strong grower.



*Pink Cherokee.



Frau Karl Druschki.



The Lyon.

Mrs. Myles Kennedy (T.). The flowers are large and finely formed, being silvery white, shaded buff, with pink center. It is an exquisite variety for table decoration; the blooms last well after being cut.

Mrs. Wemyss Quinn (H. T.). Of all of the late introductions, it is one variety that has proved charming in color. It is an intense lemon chrome washed with solid maddery orange becoming deep canary yellow with age. It makes a gorgeous corsage rose and as a cut flower is unexcelled. It is considered to be one of the best forcing roses for greenhouse culture and as the blooms remain so long, it is a favorite among florists.

Ophelia (H. T.). Since its introduction several years ago, it has been growing steadily in public favor. It is a heavy grower and produces flowers in abundance. In color it is salmon pink shaded rose and yellow at the base of petals. A splendid variety for outdoor culture.

Papa Gontier (T.). A magnificent bold flower; finely formed buds, color brilliant carmine, changing to rose and lilac; in brilliance of color fully equal to Gen. Jacqueminot; it is delightfully fragrant and is the most popular forcing rose of its color.

Paul Neyron (H. P.). This rose produces the largest of all rose blooms. In color, bright salmon pink, very clear, and double, highly scented. One of the best of the Hybrid Perpetual type.

Perle des Jardins (T.). Bright straw, sometimes canary color. Very large, full and fragrant and most popular forcing Tea rose.

***Philadelphia Rambler (Poly.).** It differs from Crimson Rambler in these important points; the color is deeper and more intense; the flowers are perfectly double to the center, very durable and of the finest substance; the blooms retain their freshness for a much longer period and it blooms later. It is fully as free a grower and climber and is a very resplendent bloomer.

***Pink Cherokee (Misc.).** Similar to White Cherokee, possessing all of its vigorous growth and beautiful glossy foliage. The flowers are rich pink. A very valuable climbing variety.

Queen Mary (H. T.). A combination of colors makes this rose very attractive, having a creamy white petal stenciled and flushed with cerise, an underlined shade of yellow nearing the base of the petals. The buds are long and pointed, and when full blown the petals are somewhat recurved. The open flowers are semi-double and very fragrant. A very free and continuous bloomer.

Radiance (H. T.). A very free flowering habit; a strong grower. The flowers are a beautiful blending of shades of carmine rose with opal and carmine reflected, and is very fragrant. It is a very superior variety for garden culture.

***Reine Marie Henriette (H. T.).** Cherry-red. Large, finely formed flowers; color a beautiful cherry-red; flowers tea-scented; a very pretty and deservedly popular climbing rose.

Rhea Reid (H. T.). The flowers are large and double, varying in color from rose-cerise to rich crimson red. This variety makes a good red rose for the garden.

Richmond (H. T.). One of the best red roses yet produced and a perfect forcing rose. It comes to perfection with very little care. It is a constant bloomer, very fragrant with a color approaching a deep scarlet in tone. It has long pointed buds on tall straight stems, with elegant dark foliage. A superb rose in every sense of the word.

Rosalind Or (H. T.). This new pink seedling of bright pure scarlet pink, like a perfect Lawson carnation, with pointed buds and petals beautifully rolled; produced on long, slender stems, has qualities which place it in the front rank among the many new and grand roses.

Sunburst (H. T.). Few roses have so many favorable points all combined in one plant. Its bronzy foliage, absence of thorns, its long, pointed, orange-yellow buds, becoming deeper towards the center, carried on long, stiff stems, place it in the front rank among the new roses.

Sunset (T.). A fine novelty, a sport from Perle des Jardins which it strongly resembles, except in color, which is a remarkable shade of rich golden amber, elegantly tinged and shaded with dark ruddy copper, intensely beautiful, and resembling in color a splendid "afterglow"; very fragrant.

Tausendschoen or Thousand Beauties (Poly.). It derives its name on account of its heavy blooming qualities and the variation of colors. It is a delicate shaded pink or white delicately flushed changing to rosy carmine. Being practically thornless makes it very suitable for porch and arch decoration.

Tipperary (H. T.). A clear yellow, small flowered rose, borne on stiff stems. A continuous bloomer and has beautiful foliage.

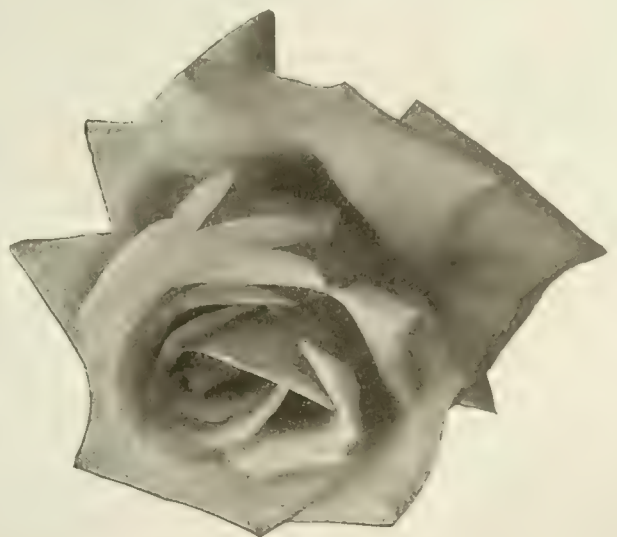
Ulrich Brunner (H. P.). Brilliant cherry red; a very effective color. Flowers fine form and finish, carried well upon the plant. Petals of great substance. A very valuable rose.

White Killarney (H. T.). This is a sport of Killarney. The buds are long and pointed, and the flower is pure white in most localities; sometimes the edges of the petals are touched with pink, which often disappears as the flowers expand.

White Maman Cochet (T.). The flowers are of enormous size; remarkably round and full, pure, clear snowy white throughout when grown under glass; but when grown out of doors it pinks like Bride, but the pink only adds to its beauty. It is by far the finest and most reliable bedding rose yet produced. Its buds are long and pointed, with petals daintily reflexed. An exact counterpart of the famous Maman Cochet in everything except color.

***W. A. Richardson (N.).** Beautiful orange-yellow; flowers medium but very showy and distinct; very fine and floriferous. A valuable climber.

Yellow Maman Cochet (T.). Light yellow, edged rose. By some not regarded as good as Maman Cochet, but has larger stems and is desirable when a yellow rose is desired.



Richmond

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YUCCA TREE PROTECTORS. (1) Our extremely long, hot and dry summers make it imperative for all fruit-growers to shade the bodies of young trees the first season. The most efficient and valuable protectors are made from the Yucca Palm. Soak the bundles in water before using.

No orders accepted for less than 25 Protectors.

Length	Width	Wt. per 100	25	50	100	1000
30 in.	7 in.	22 lbs.....	\$1 00	\$1 50	\$2 50	\$21 00
24 in.	7 in.	18 lbs.....	90	1 25	2 00	18 00
18 in.	7 in.	13 lbs.....	80	1 10	1 75	15 00
16 in.	7 in.	12 lbs.....	70	1 00	1 50	13 50
14 in.	7 in.	10 lbs.....	60	85	1 30	12 00
12 in.	7 in.	9 lbs.....	50	75	1 15	11 00

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Folding Pruner. (8) Cocoa handle, steel-lined; length handle 4 inches. Blade oil-tested and tempered. For heavy work. \$1.50 each.

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Perfect Pruning Shear. (9) American manufacture. This new shear we have tested and found it to be highly satisfactory. Price per pair, \$3.00, actual weight, 1 lb.

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BOOKS

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California Garden Flowers. By Edward J. Wickson. First edition 1915, 262 pages, 5½x7½ inches; illustrated; cloth bound. This book aims to tell the beginner in California, whether he be a scholar struggling with his school garden, or a suburban gazing vacantly on his residence lot, or the farm home maker, who is puzzled to translate his experience with teams, plows and pasture fields into trowels, pruning-shears and lawns, just what to do to make garden soils, grow plants and surround his abode with beauty under the peculiar climatic conditions of California. Price, \$1.50 per copy, postpaid.

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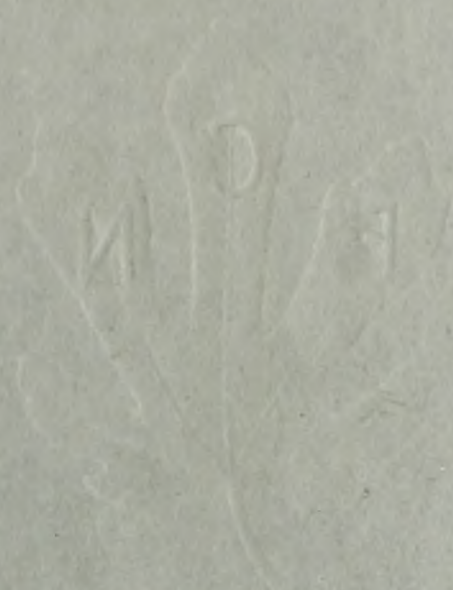
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